

INVESTMENT

Principles and Practices

by

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Preface to Third Edition

THE 1929 boom and the crash that followed marked the interval between the original and the revised editions of this book. After glittering speculative profits, banks closed, stocks declined precipitously, and real estate and foreign bonds made spectacular, in some cases scandalous, defaults. More kaleidoscopic changes could hardly be imagined. Yet since the appearance of the revised edition, war clouds of such magnitude have burst that they threaten to inundate and upheave institutions on a world-wide scale. The almost miraculous advances of science and industry have been welded into a thunderbolt that endangers the civilization that created them.

In such times, the search for security that takes the form of investment might seem hopeless. But saving and its employment are processes that form an integral part of our democratic way of making a living. Investors and investment institutions cannot flee to a storm shelter, as a speculator might, but must continue to play their part, and share in the fortunes of the economic community.

Until property is taken over by the state under Communism or strait-jacketed under Fascism, investment must continue. As its problems grow more difficult, the need for a thorough understanding of principles becomes even more essential. However, these principles can be appreciated and applied only as they are examined in the light of what actually goes on in the bank, the factory, and the market place. The authors hope that this third edition will prove to have struck the happy medium in combining precept and practice for student and practitioner.

RALPH E. BADGER
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Preface to First Edition

WITHIN the past twenty-five years the science of investment has assumed aspects of complexity in proportion to its increasing importance. The extension of the corporate form as a means of conducting enterprises has greatly facilitated the investment process, while the phenomenal increase in our national wealth has resulted in giving large numbers of our population capital for investment purposes. It is but natural, therefore, that a field hitherto explored for the most part by bankers, investment officers of insurance companies, and a relatively few wealthy individuals should now become a matter of lively interest to a much larger group of individuals, constituting the so-called middle class.

This situation has a twofold interest for the student of economics. There is, of course, the strictly vocational aspect of the science. A thorough understanding of the principles of investment is indeed of the utmost importance to the man who anticipates entering the banking field, as a commercial or an investment banker. The same may be said of the man who expects to engage in the selling of securities. Many lawyers, especially those who engage in the work of administering estates or who act as trustees, must also be thoroughly familiar with the subject. On the other hand, nearly everyone hopes, at least, to accumulate some capital during his life and quite naturally desires to employ this in a way that will bring him the maximum return consistent with a minimum risk. This desire can be accomplished only by a reasonable familiarity with the principles of investment.

Quite apart from the vocational aspects of the subject, however, one finds that it has a social significance as well. Material progress depends upon a growing fund of capital goods. Capital goods, in turn, require the double process of saving and investing. From a social standpoint, saving is meritorious; yet no benefit accrues from the saving process until direction has been given to that which is saved. It is this last process that we call investment. It is quite impossible in any one work to cover exhaustively the entire field of investment. There are so many ramifications to the subject that no one man can ever say that

he has thoroughly mastered them all. One man may be fairly well versed in industrial securities; another, in public utility securities; another, in securities of railroads; and still another, in municipals. To combine a thorough knowledge of all fields, however, is humanly impossible. So it is with the preparation of a book of this nature. It is possible to cover only in a rather broad way the more important aspects of the entire field, and to develop those fundamental principles of the science which may be applied later in the process of specialization. This is the aim of the present work.

The arrangement to be followed provides for a division of the subject into four major parts. Part I we shall call Introduction. Here will be considered some of the more general aspects of the problem, such as its historical development, factors bearing on the demand for, and supply of, loanable funds, the return on invested capital, and the question of investment policies. Part II will be devoted entirely to the contract aspects of various kinds of investments. After a brief consideration of bases for classifying securities, consideration will be given to the contractual features attached to different types of secured and unsecured bonds, as well as to special types of bonds. The same treatment will be accorded preferred and common stocks. A constant effort will be made in this section to point out the relative desirability, from the investor's standpoint, of the more common provisions found in different types of securities, as well as to show clearly the investment characteristics of each major group. In Part III we shall consider the entire question of financial analysis. Various methods will be set up for analyzing and comparing the financial status of important groups of companies. Consideration will be given to industrial companies, public utilities, railroads; to the securities of financial institutions, such as insurance companies, banks, and investment trusts; to real estate investments and government and foreign securities. It will be observed that a sharp distinction has been made between analysis of the contractual features and analysis of the financial status of investments. Important as each kind of analysis is to the investment problem, they differ fundamentally in theory and hence are treated separately. Some acquaintance with the fundamentals of accounting is desirable in connection with financial analyses, although an effort has been made in the following discussion to cover enough of the accounting principles involved to enable the student with little or no training in accounting to grasp the

points herein treated. In Part IV are considered the mechanics of investment. The routine and procedure followed in the purchase and sale of securities, as well as the mathematics ordinarily required to compute bond and stock yields and interest rates, are described. The more important services available to the investor are likewise described. Taxation in its relation to the investment problem is considered in another chapter. The final chapters are devoted to a consideration of the relationship between the business cycle and fluctuations in investment values.¹

When treating a field so broad in scope as the present, it is a perplexing problem to decide the limits that should be set in respect to subject matter. For the student or reader who wishes to specialize in the field of investments, a complete treatment is desirable. Where the book is to be used as a text for a single semester course, on the other hand, it is suggested that the following chapters be omitted: Chapter XV, dealing with the regulation and economics of public utilities; Chapters XX and XXI, dealing with the securities of banks, insurance companies, and investment trusts; and Chapter XXIX, dealing with taxation and investments.

The basis for exclusion here is the somewhat 'specialized character of the material in these chapters. However, the teacher conducting the course may have good reasons for making a different selection. Thus, where the class has already studied corporation finance, it might be possible to omit a substantial portion of Part II. In any event, an effort has been made to treat various topics as integrals, for the purpose of assisting the teacher or student in arranging the amount of reading best adapted to his own circumstances.

Throughout the entire book, an effort has been made to combine the theoretical point of view with the practical. In the treatment of a subject of this kind, there is the danger of leaning too far in one direction or the other. The author's experience in the field has at least brought him in touch with both of these points of view. For five years he has been in charge of the courses in corporation finance and investments at Brown University. During the past six years he has acted as consultant in a number of tax cases in which he has been called upon to value a rather wide range of industrial securities for inheritance and income tax purposes. For a year and a half he was in charge

¹ In the revised and present editions, Chapters 30, 31, and 32 of the first edition have been revised and combined into one chapter, Chapter 30.

of the statistical department of Bodell & Company, Investment Bankers. At the present time he has supervision of the investments of certain large estates in Rhode Island. It may rightly be inferred, therefore, that the present book represents an effort to combine the more important principles, both practical and theoretical, evolved in the author's mind as the result of these experiences in the field. The arrangement followed in developing the material is essentially that used in the courses the author conducts at Brown University.

The author desires to express his deep appreciation for the suggestions made by Professor James P. Adams of Brown University in respect to the arrangement and material in the chapters on public utilities. Dr. Lucy W. Killough deserves much credit for her painstaking work in editing the entire manuscript and checking the statistical material, and in the preparation of charts. To Mrs. Agnes G. Badger appreciation is due for careful attention to the detail work in preparing the manuscript.

RALPH E. BADGER

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Part I
Capital and Investment Policy

Introduction

Stages in economic development. Economists sometimes classify the various stages in the development of human society according to the characteristic methods of acquiring a livelihood. The four periods customarily appearing in such a classification are as follows: the hunting and fishing stage; the agricultural stage; the handicraft stage; and finally, the industrial, or capitalistic, stage. Capital, in the economic sense, has been employed by man since he first fashioned crude hunting implements. Not until the latter part of the eighteenth century, however, can it be said that capital played a dominant part in our economic structure. Even as late as the handicraft period, such capital as was employed was mostly in the form of tools used by men who produced largely by hand. Under this system, minute division of labor, as we now know it, was nonexistent. The worker was largely responsible for the entire product, and no considerable amount of investment was necessary to enter production. Individual skill and craftsmanship were at a premium, while standardization and quantity production were unknown.

Late in the eighteenth century, a distinct change in production methods took place. The economic revolution which occurred in England between 1770 and 1800 was occasioned by a series of inventions in the textile industry and the perfection of the steam engine. The opening of new territories, improved methods of transportation, and the widening of markets that quickly followed added impetus to the movement, with the result that, at the beginning of the nineteenth century, the old methods of hand production were obsolete. Ownership of factories and machines

gradually came into the hands of capitalists, and consequently, the workers no longer owned the tools of production.

The chief characteristic of this new system is the manner in which labor is utilized. Instead of proceeding immediately to the manufacture of an article, say, shoes, labor is first employed in the erection of a factory and machinery. Later, more labor is employed directly in the manufacture of shoes; but not for some time—perhaps several years after the initial steps are taken. The results of machine production are division of labor, specialization, and greatly increased production. In fact, the further this development is carried, the more specialized the equipment, and the greater the output.

The *sine qua non* of this system of production, however, is the existence of a fund of capital. There must be a class of persons who are in a position to divert a part of their current income to the production of factories, railroads, machines, raw materials, and other goods¹ which, of themselves, are unable to satisfy the wants of final consumers, but which are used for purposes of further production. This class of goods the economist calls capital in contradistinction to goods or services which are destined for immediate consumption, and it is important for us to recognize and to maintain this distinction. In economics the term "capital" is used to denote factories, goods, or services which, of themselves, are not available in final form.

Material prosperity and capital accumulation. Enough has been said to indicate that the prosperity of a nation today depends, in large measure, on the existence of a growing fund of capital goods. The United States, England, and Germany are certainly among the richest nations of the world from the standpoint of capital, and at the same time they are among those best supplied with material wealth. Countries like India and China, and many nations of Europe, have relatively little capital at their command. Agriculture is carried on with primitive tools; and manufacturing, in many instances, is conducted under the handi-

¹ There is a general distinction in economic theory between producers' goods, or capital, and consumers' goods. See Taussig, Frank W., *Principles of Economics* (New York: The Macmillan Co., 4th ed.), Vol. I, p. 64. While the existence of such a distinction is not unanimously recognized, it will be maintained throughout this book. In general, "capital" will be used to designate those goods or services used for purposes of further production, as distinguished from goods used for consumption purposes. See Fisher, Irving, *Elementary Principles of Economics* (New York: The Macmillan Co., 1913), p. 38; Carver, Thomas N., *Distribution of Wealth* (New York: The Macmillan Co., 1904), p. 125 ff.; and Clark, John Bates, *The Distribution of Wealth* (New York: The Macmillan Co., 1924), Chapter IX.

craft system, with the result that the productive power of labor is very low. There is, of course, a close correlation between the productive power of the laborers of a country, their real wages, and the standard of living. A partial explanation of the economic well-being of a nation is found, therefore, in the relative amount of capital at its command.

The use of indirect methods of production, a high degree of specialization in industries, the use of specialized machines, the development of adequate means of transportation and communication—all require capital. Capital, on the other hand, requires a saving from current income. That is, the creation of capital goods requires willingness and ability on the part of some people in the community to forego the immediate consumption of a part of their current income and to divert it to the production of machinery, factories, railroads, and other kinds of producers' goods.

Unquestionably the saving process depends on two things: (1) willingness, and (2) ability. Thus, while two nations may have similar or equal national incomes, one may practice greater thrift than the other and thereby create a larger fund of capital. On the other hand, the extent to which an individual or a nation can save will depend on the amount of its income, since there is a minimum of income necessary to existence, out of which any saving is impossible. It might be argued that we are reasoning in a circle when we state that saving depends on the amount of a nation's income, and this income, in turn, depends on the amount of capital it has at its command. A moment's reflection, however, will show that the amount of capital a nation has is only one of the factors contributing to the amount of its income. Among other factors are the existence of natural resources, the skill and organizing ability of the people, climate, geographical situation, and the fertility of the soil.

It is, of course, far beyond the scope of this book to analyze the underlying causes of national success or failure. These are partly economic, partly psychological. Despite the wide range of influences which have a direct bearing on national prosperity, however, we are entitled to assume, for our present purposes, that the act of saving, which is the first step in the investment process, is one of vital importance to the nation and also to the individual.²

² An effort should be made to appreciate the significance of saving from a fundamental point of view. We are accustomed, in everyday thought, to consider sav-

Investing closely allied with saying. Closely allied with the act of saving is that of investing. The mere setting aside, or the accumulation, of present goods, or of money—the customary term now used in speaking of wealth—is only one half of the entire investment process. It is necessary that direction be given to the employment of wealth that has been saved. The parable of the talents contains a wholesome lesson for us even today. The servant who buried his talent made no contribution to the progress of the world. Likewise, the man who hoards his gold has saved, but his act of saving has not benefited society. The completed process involves: first, saving, or foregoing present consumption; and second, the act of using in the creation of producers' goods that which has been saved. This may be done in several ways. The saver may himself acquire capital goods; he may intrust his savings to someone who, individually or through partnership, conducts some form of business enterprise; he may turn his funds over to a corporation in return for its stocks or bonds; or he may simply commit that which he saves to a bank or an insurance company, or to some other form of financial institution, which, in turn, will proceed to employ it for him. This second part of the transaction we call investing. Investing, therefore, may be defined as the act of intelligently determining the uses to which capital shall be put.

The importance of a growing fund of capital to the well-being of a nation is universally recognized. No less important is the direction or employment of this fund to the best advantage of society. The mere act of saving, commendable in itself, is of no benefit to the community unless proper employment is made of that which is saved. The erection of a plant to manufacture a perpetual motion machine is a mere waste of resources. Likewise the attempted development of a mine in a territory where the ore content is too low to be of any real value represents an economic loss. Capital intrusted to a corporation that is operated by unscrupulous promoters merely for the purpose of selling securities also is lost from a social standpoint. Prior to the founding of the Securities and Exchange Commission hundreds of millions of dollars were lost annually by the uninformed, who

ing merely in the light of laying aside money, by putting it in the bank, or otherwise investing it. This act has a wider significance. By it we forego immediate consumption and divert labor and resources to the production of capital goods.

committed their hard-earned savings to such enterprises as fake oil wells and other dishonestly promoted schemes, in the hope of receiving alluring profits that never came. But far worse than this in terms of social loss is the number of failures of legitimate businesses. Thus, in the United States, in 1938, 12,836 concerns out of a total of 2,101,933 failed, with liabilities aggregating \$246,505,000.³ The latter losses result chiefly from incompetence and inability on the part of *entrepreneurs* who have been unable properly to manage either their own funds or those intrusted to them by others, or from the attempted development of enterprises for which there is no real economic need.

The science of investment. Looked at from a broad standpoint, the science of investment deals with the employment of capital. The individual, by his pecuniary return or loss, is rewarded for his success or penalized for his failure in the investing of his private funds. As we have suggested, however, there is a social as well as an individual aspect to the problem. Resources and labor committed to enterprises which cannot profitably fill some economic need are wasted, and society as a whole loses. A similar situation may be said to exist where loanable funds are placed in the hands of those who are unable properly to manage undertakings. Here the same result is met: loss to the individual investor, and an economic waste of society's resources.

Thus are brought to light two of the fundamental principles of investment: the enterprise sponsored should fill a definite economic need in a manner capable of yielding a profit; and the management of the enterprise to which funds are intrusted should be both efficient and honest.

These two cardinal principles, important as they are, can rarely, if ever, be measured statistically, as can many other factors in the problem. This word of caution is given early in an effort to make clear the fact that, regardless of the conclusions which may be deduced from elaborate financial analyses, much depends, after all, on the nature of the enterprise and the character of its management. Both of these factors will be reiterated in subsequent pages, with examples here and there to illustrate further their vital significance to the investment problem.

The social importance of studying the science of investment,

³ *Statistical Abstract of the United States, 1939*, p. 307.

as we see, arises from the necessity of properly employing the surplus funds—the capital—of society. It is true that, throughout this discussion, emphasis will be placed on the individual's problem; yet, that which proves profitable for the individual generally proves advantageous to the community. Although in later pages we shall not emphasize the broad social aspects of the problem, it will not be because they lack importance. Concrete development requires us to consider the entire subject largely from an individualistic point of view. But, in so doing, we do not for a moment admit that our study is entirely devoted to profit-making formulas. The entire subject of investment is closely tied up with the economic welfare of society.

Historical development of the investment problem; early forms of investment. It is only within comparatively recent years that the subject of investment science has commanded any very widespread interest. When simple methods of production prevailed, and when the various factors of production were generally assembled under one person, there was little opportunity for investment in the modern sense. This does not imply that some aspects of the problem as it exists today were not then present.

The development of large undertakings by means of division into shares, for instance, may be traced back to the formation of associations in Rome for the farming of taxes. Under this arrangement the tax farmers (or collectors) associated with themselves capitalists, who advanced funds for the purchase of rights to collect taxes and shared in the profits of these operations, although they themselves had no share in managing the enterprises. The shares of these associations were quoted and were subject to considerable speculation until Augustus reorganized the entire system of taxation in the Roman Empire.⁴

Public loans of Italian cities. More closely akin to our modern dealings in transferable securities, however, was the issuance of public loans by the Italian cities of Venice, Genoa, and Florence in the Middle Ages. As early as the twelfth century the Bank of Venice was formed to act as transfer office for the national debt. Dealings in the French debt also date back to the Middle Ages, and by the sixteenth century we find speculation

⁴ Jannet, Claude, *La Spéculation et la Finance au XIX^e Siècle* (Paris: E. Plon, Nourrit et Cie, 1892), p. 337.

in City of Paris bonds promoted by chicanery on the part of the nobles and the king, who probably kept his favorites informed as to the state of the public treasury.

Development of bourses. Accompanying these dealings in state debts was the development of bourses of commerce on the Continent, or of public places where merchants, bankers, brokers, and others met to deal in bills of exchange, large enterprises, insurance, loans, and similar matters.⁵ Early impetus was given to speculative trading on these various bourses by the formation of the Levant Company in 1581 and the Dutch East India Company, chartered in 1602. The shares of the latter company were transferable to bearer, if desired in that form, and were actively traded in on the Amsterdam Bourse. Although the French East India and West Indies companies were established during the latter part of the seventeenth century, the shares of these companies were subscribed to largely by the king and his associates and did not appear to any great extent on the exchanges. Shares in the Bank of England, however, were actively traded in during the last decade of the seventeenth century. It is significant that the early use of the joint-stock principle in England was rarely applied to manufacturing enterprises. In the middle of the eighteenth century Adam Smith observed that "the funded debt, the Bank of England, and the East India Company were the only examples of really large and safe investments."

Speculative and investment transactions in negotiable securities developed most rapidly in England after the opening of the eighteenth century, although the speculative outbursts occasioned by John Law's schemes for readjusting the national debt of France and the Mississippi bubble indicate that trading was by no means absent in France.

During the nineteenth century we find trading in securities carried on in a regular and orderly way on the London Stock Exchange, the Paris Bourse, and the New York Stock Exchange, which was officially organized as early as 1817. Early dealings in this country were chiefly in the national debt, which, in 1816, amounted to \$108,510,000.⁶ There is, however, a record of trad-

⁵ Martin, Germain, *La Grande Industrie en France sous le Règne de Louis XV* (Paris: A. Fontemoing, 1900), in the Bibliothèque de la Société des Études Historiques.

⁶ Conant, Chas. A., "The Evolution of Negotiable Securities," *Bankers Magazine*, Vol. 70, p. 29.

ing as early as 1801 in the shares of leading bank and insurance companies.⁷

Development of corporations and the investment problem. The rapid industrial expansion which took place throughout the world during the nineteenth century was naturally accompanied by a corresponding development in methods of finance. The perfection of the corporate form of organization in this country and of the joint-stock company in England has been one of the greatest factors in encouraging investment in the modern sense, and has greatly facilitated business undertakings on a large scale. In fact the corporation is today by far the most important type of business organization. Although 52 per cent of all manufacturing businesses reporting to the United States Census Bureau in 1929 used some other form of organization, the corporations in that field produced 92 per cent of the total value of manufactured products. In the public utility, railroad, and banking fields, by far the greater number of enterprises are conducted as corporations. The reasons for the extensive growth in the corporate form of organization lie in its superiority over other forms of coöperative business undertaking. The corporation is perpetual in life, unless terminated for cause, or unless its life is limited by the terms of its charter; limited liability is enjoyed by the shareholders, except in the case of some state banks, whose stockholders are subject to double liability; opportunities are offered for specialization among owners and creditors in respect

⁷Pratt, Sereno S., *Work of Wall Street* (New York: D. Appleton & Co., 1919), p. 6. An advertisement which appeared in the first issue of the *Evening Post*, November 16, 1801, contains a list of offerings which is reproduced below:

PRICES OF STOCK

	Per Cent
6 Per Cent Funded Debt.....	98¾
3 Per Cent Funded Debt.....	56½ @ 57
8 Per Cent Loan.....	112½
6 Per Cent Navy Loan.....	par

BANK STOCKS

	Per Cent
United States Bank.....	143 @ 143½
New York (dividend off).....	131½
Manhattan.....	132

INSURANCE SHARES

	Per Cent
New York Insurance Co.....	128
Columbian Insurance Co.	137 @ 138
United Insurance Co.....	118 @ 119

to risks and participation in profits; and investment is facilitated by means of divisible and transferable shares. It is no exaggeration to state that our great industrial and financial development would have been impossible without some form of business organization offering the advantages granted to the corporation.

The first private enterprises to be promoted as corporations in the United States on an extensive scale were the railroads. Likewise, public interest in private enterprises centered, at first, largely around the securities of our railroads. The stock of the Mohawk & Hudson was the first railroad stock to be listed on the New York Stock Exchange.⁸ This took place in 1831. Thereafter, railroad securities rapidly assumed an important rôle in American finance and really dominated the investment market of this country until the opening of the present century. The popularity of rail securities was promoted, no doubt, by the public character of the railroad business and its importance in the minds of investors.

Recent tendencies in the investment field. During the last quarter of the nineteenth century an increasing interest was shown in industrial securities, but not to the exclusion of railroad securities. The railroads, during this period, were constantly improving their financial status through the consolidation of small roads into great systems, thus eliminating competition and stabilizing earnings.⁹ Although the development of industrial companies was rapid at this time, it is nevertheless true that they suffered from cutthroat competition and consequent instability of earnings. It was not until the era of industrial consolidation, which came after the opening of the twentieth century, that industrials were looked upon with favor, and even today they are considered the least stable of all the major groups of enterprises.

Except for a few gas and water companies, the public utility industry prior to 1890 was to all intents and purposes unknown. At least it may be said that it did not exist as we now know it. After 1890 a rapid development in the use of electric traction took place, and at the opening of the present century the electric light and power industry really started on its remarkable career. Other public utilities, such as the telephone and the telegraph,

⁸ Pratt, Sereno S., *Work of Wall Street* (New York: D. Appleton & Co., 1919), p. 10.

⁹ An excellent short account of the more important consolidations may be found in Jones, Eliot, *Principles of Railway Transportation* (New York: The Macmillan Co., 1924), Chapter XVII.

have likewise enjoyed a rapid extension during the present century, while the gas industry has also shown a healthy growth.

Scope of the science. The rapid commercial and industrial expansion which has occurred in this country during the past fifty years, accompanied by an increasingly complex financial structure, has focused attention more and more on the science of investment. Some idea of the growing importance of this science may be gained by considering various estimates of the amount of securities outstanding in the United States alone. It has been estimated that the total value of physical property in this country in 1904 was \$107,104,000,000,¹⁰ while the visible outstanding securities for that year, exclusive of intercorporate holdings, were \$24,393,932,683, with a market value of \$35,460,605,877.¹¹

The value of securities outstanding in 1928 has been estimated at about \$198,000,000,000, made up as follows: industrial and miscellaneous, \$81,000,000,000; railroads and public utilities, \$52,000,000,000; government, state, and municipal, \$33,000,000,000¹²; and real estate and farm mortgages, \$32,000,000,000.¹³

The total wealth of the country was estimated as \$353,000,000,000 in 1922.¹⁴ This total was based upon a national "inventory" of the physical wealth—real estate, plant and equipment, live stock, and inventories of merchandise—and avoids the duplication which would result if the securities and credit instruments based upon these tangibles were also included. The estimates of

¹⁰ *Statistical Abstract of the United States*, 1934, p. 261.

¹¹ Conant, C. A., "World's Wealth and Negotiable Securities," *Atlantic Monthly*, Vol. 101, No. 1, Jan., 1908, pp. 97-104.

¹² *Moody's Manual of Investments: Industrial Securities* (New York: Moody's Investors Service, 1929), p. xlv. With the onset of violent price fluctuations after 1930, certain of these overall estimates were discontinued.

¹³ Includes \$1,500,000,000 real estate mortgage bonds as estimated from data given in *Moody's Manual of Investments: Banks; Finance and Credit Companies* (New York: Moody's Investors Service, 1931). For estimates of home and farm mortgages, see pp. 47, 48, and 49. For more recent data on debt securities, see *Internal Debts of the United States*, edited by Evans Clark (New York: Twentieth Century Fund, Inc., 1933).

¹⁴ *National Wealth and Income*, Federal Trade Commission, 1926, p. 2. This figure is higher than the Conference Board estimate shown in the table above and also the Bureau of Census figure for 1922 of \$320,800,000,000. Again, Harwood estimated national wealth in 1932 at \$286,500,000,000 in contrast with the higher figure in the table above. Harwood, E. C., "Wealth vs. Debts," *Barron's*, February 19, 1934, p. 9. The figure given above excludes \$3,600,000,000 of the wealth abroad. Estimate based upon figures of Doane, Robert R., *The Measurement of American Wealth* (New York: Harper & Bros., 1933), p. 199. The latter writer, however, includes a number of intangibles such as bank deposits.

the National Industrial Conference Board for selected years are of interest:¹⁵

ESTIMATES OF NATIONAL WEALTH

(Billions of Dollars)

1922.....	307.1
1925	319.6
1929.....	362.9
1930.....	353.7
1932.....	307.7
1937.....	315.8
1938 (preliminary estimate)...	309.4

A large part of the decline after 1929 was attributable to falling prices subsequent to that year, which were followed by a rise after 1933. These fluctuations in the valuation of the actual physical capital of the country were substantially less than those of market values of securities issued against such property.¹⁶

Although it appears that a larger proportion of the community's wealth was represented by securities in 1922 than in 1905, this conclusion is not fully warranted in view of the possibility of error in estimating the amount of outstanding securities.¹⁷ Nevertheless, the total par value of securities outstanding at the beginning of the 1920's had reached an impressive total and is likely to continue high relative to national wealth.

Complex nature of the problem. During the years prior to 1931 the annual flotation of new securities ranged between seven and eleven billion dollars, including government as well as corporate issues.¹⁸ The proceeds of these new issues were used, in

¹⁵ *The Economic Almanac for 1940* (New York: National Industrial Conference Board, 1940), p. 296.

¹⁶ For data on market values by classes of listed securities during this period, see the *Bulletin of the New York Stock Exchange* (monthly).

¹⁷ However, this conclusion is substantially that arrived at by Berle, A. A., and Pederson, V. J., *Liquid Claims and National Wealth* (New York: The Macmillan Co., 1934).

¹⁸ *Statistical Abstract of the United States*, 1939, p. 305. Total capital issues, including corporate, foreign government, farm loan, and municipal, 1925-1938, were as follows:

(Millions of Dollars)

Year	Issues	Year	Issues
1925.....	7,126	1932.....	1,730
1926.....	7,430	1933.....	1,054
1927.....	9,934	1934.....	2,212
1928.....	9,992	1935.....	4,752
1929.....	11,592	1936.....	6,254
1930.....	7,677	1937.....	4,003
1931.....	4,023	1938.....	4,384

part, to retire or refund outstanding obligations, and, in part, to develop new projects or additions to old ones. These figures, while giving some idea of the magnitude of current financial operations, fail to convey any adequate idea of the complexities that surround the problem of investment. With the development and refinement of the corporation as a form of business organization, there has been a constant tendency to increase the number of different types of securities offered for sale to the investing public. While certain broad classes of securities whose character has been but little changed still remain, there is, nevertheless, a constant effort to introduce new safeguards and to vary investment risk and participation in profits to fit the needs of the individual purchaser. On the other hand, promoters and investment bankers are frequently desirous of securing capital without giving full control of the corporation to outside stockholders. These conflicting motives have produced a veritable maze of different types and classes of stocks and bonds, running all the way from a simple first mortgage bond of an operating company to a convertible bond, with attached warrants, of a holding company. The same variation in the basic investment contract is found in stock issues. Preferred stocks may be surrounded by no safeguard or by a dozen different ones, and common stocks are no longer simply evidences of ownership as in the past. The development of nonvoting, Class A common stocks introduced a new instrument of finance popular for a time, but which is now less favored.

At the same time, new forms of enterprise have been developed to such an extent that it is no longer possible to construct a classification of enterprises according to their nature. The customary grouping of securities into government, municipal, railroads, public utilities, and industrials is no longer sufficient. This is illustrated by two simple examples. Under public utilities we must provide subdivisions for the securities of electric power and lighting companies, of gas, of electric railway, and of water companies. Yet, electric power and lighting companies may operate either with steam or water power, and the modern public utility holding company may be made up of operating companies which come under all four of the previous classifications. The term "industrial companies" is likewise too broad to be of real value. Under this head, for example, must be classed such diverse enterprises as copper mining, the manufacture of electrical equipment, fruit growing, radio manufacturing, railroad

equipment manufacturing, and merchandising. In other words, a classification of types of securities, or of enterprises, in order to be of real value today, must be extremely detailed, so much so in fact that it is likely to become cumbersome.

Need for scientific study: investment versus gambling. Although the task of mastering the subject of investment today is far more difficult than formerly, in that it is vastly more complex, it is none the less interesting. It is also true that the field now offers as great or greater rewards for those who really devote serious study to its many ramifications. There are some successful investors who, by devoting constant attention to their commitments, have been able to earn a very high rate on their funds. Such investors, however, employ a portion of their funds in common stocks or convertible bonds. This can be done, however, only by an exhaustive study of market factors and securities and does not result from a mere reading of various financial services, or from following random "tips." Some "investment services" and brokerage house recommendations have merit in that they actually analyze the securities on which they offer advice. Many, if not most, are worthless in that they are inspired by a desire to promote the sale of a particular security, or are merely a reflection of street gossip. One will do far better, in the long run, to restrict his investments to the most conservative types, which offer only a very limited return, than to "gamble" his savings upon such advice.

Gambling is sometimes defined as "blind chance-taking." Such a broad definition would include "playing the stock market." A more restricted and objective definition of gambling is "risk-taking for gain in which the participant creates the risk, as in a wager or a game of chance." Speculation is contrasted as the assumption of risks which are inevitable in our economic society. The owner of commodities, such as cotton and wheat, or of common stocks, assumes a risk that is inherent in the conduct of business. It should be added that unwise or unskillful speculation may produce economic ills as disastrous as gambling.

Speculation is often defined as the purchase of high-risk securities, such as those of a newly organized company of uncertain success; investment, as the purchase of low-risk issues with a relatively predictable future. Another definition emphasizes motive: speculation is primarily for the purpose of appreciation in principal; investment, for income in the form of interest, dividends, or rent. Price changes are more often than not the result

of general external conditions that affect a whole group of securities, rather than the result of factors peculiar to the particular business. Speculators seeking to reap short-run profits often ignore the situation of the individual company. Investors, however, taking a more permanent position, give attention to the analysis of the specific issue in order to determine probable future income. The general business picture becomes background for outlining the broad policy to be pursued. The literature of investment emphasizes the approach which analyzes the individual commitment, and our study will center around the proper methods for such an investigation. Reference will also be made to the speculative influences. The more unstable our economic society, the more important do such factors become and the more difficult it becomes to plan a satisfactory investment policy.

The Supply of Capital

In many of its aspects, the supply of investments is a problem that is important in economic theory. Consider, for example, the close relationship between the science of investing, interest rates, and the supply of, and demand for, capital. Here we find ourselves at once grappling with one of the most important and difficult problems of the entire subject of economics, for, even though the problem of interest belongs essentially to the field of pure economics, its importance in the theory and practice of investment precludes our passing over it lightly.

We know from a study of economics that interest is the price paid for capital. In a broad way the rate of interest is governed by the supply of, and demand for, capital. This statement is true, despite the fact that short-time interest rates, in practice, are governed by the state of bank credit and current business conditions, and vary with little or no reference to the more fundamental factors just mentioned. Contrasted with current or short-time changes in interest rates, however, are so-called secular movements, which take place slowly and which extend over a much longer period.¹ In the present section of our work we shall confine our discussion to these broad movements and some of the basic causes therefor.² Why is it that the current rate of interest at times rises to a level as high as 8 or 9 per cent, while at other times premier securities sell to yield as low as $2\frac{1}{2}$ or 3 per cent? Why is it that the current rate of interest varies

¹ See Chapter 4 for a discussion of interest rates during the past 90 years.

² For a discussion of short-time fluctuations in interest rates and their relation to the investment problem, see Chapter 30.

widely in different parts of the world at the same time? The answers to questions of this nature can be found, in part, through an analysis of the factors governing the supply of, and demand for, capital. Because of the importance of this general and somewhat theoretical subject to the student of investments, we shall devote some time to it. Our first interest will center on the supply of capital; thereafter, we shall consider the demand for capital; and in a subsequent chapter we shall study the history of interest rates under the heading "Return on Invested Capital."

Capital originates from savings. The creation of producers' goods, or capital, is the result of saving. A nation which consumes its entire income can never increase its supply of capital, except by borrowing that which someone else has saved. The same applies, of course, to the individual. Capital can originate only when people have the ability and desire to divert a part of their current income to the acquisition of producers' goods as opposed to consumers' goods. Whereas it is true that capital, in its broadest sense, originates only in this way, we shall see that temporary or floating capital may be created through the development of an adequate banking system. It is true also that this supply of temporary or floating capital so created may have marked effects on interest rates for short periods.³ An explanation of the more basic movements in interest rates, however, will be found only in changed relationships in the capital market. If we accept the current economic theory of interest—that it represents a point of equilibrium between supply and demand that measures the marginal productivity of capital, on the one hand, and the inertia to be overcome in saving the marginal unit, on the other hand—then any change in economic relations which makes saving more or less difficult, or which increases or decreases the productivity of capital, will be reflected in the rate of interest.

National income and savings. Perhaps the most important of the various factors governing the supply of capital is the relative size of the national income. The process of saving cannot be carried on unless there is a surplus of current income over and above current needs. Conversely, the larger this surplus, the more it is possible to save. The reason for this is at once apparent. There is for the individual, as well as for the nation, an irreducible minimum of income necessary for existence. This point today has only an academic interest, however, for all the civilized nations are accustomed to a standard of living far above

³ See Chapter 30.

the so-called subsistence level. Assuming, therefore, that an individual, or a nation, has sufficient income to enable it to maintain its accustomed standard of living, we are right in stating that all excess income could be saved, that is, converted into producers' goods, such as factories, railroads, and so on, if the saving motive were sufficiently stimulated. This, however, is different from saying that all income above that necessary to maintain a given standard of living will be saved; for the extent to which saving will be practiced depends on a variety of factors. Nevertheless, one would expect to find the largest amounts of capital accumulated by those nations whose income is large, either because their productive machinery is highly developed, or because they are rich in natural resources. Thus, Great Britain, a nation coming in this category, has for years been one of the most important creditor nations of the world. Today, she is using her foreign investments to purchase the means of national survival. The United States is today perhaps the wealthiest of all nations, both absolutely and in proportion to population. Rich in natural resources and endowed with the spirit of progressiveness, this country has experienced a remarkable industrial growth, and has found it easy to accumulate large amounts of capital because of its rapidly increasing income. Other nations, less favorably situated in respect to productive power, or lacking in initiative and organizing ability, or handicapped by social, political, or religious customs, are unable to produce much more than enough to supply the pressing needs of the moment. Obviously, such nations can save but little, if anything, and frequently such savings as are eked out are hoarded rather than invested in the modern sense of the word. This condition is particularly true in a country like India.

Savings dependent on established order. Saving, especially for purposes of investment, is likewise dependent on the presence of an established order, as well as on constitutional safeguards which protect contractual and property rights. The investment of funds almost invariably implies a long-time contract between creditor and borrower. Present goods, or wealth, is usually entrusted by the investor to *entrepreneurs*, who employ it in the erection of factories, railroads, buildings, or other forms of capital instruments. For the use of such funds the borrower agrees to pay back to the lender not only the funds originally borrowed but additional amounts in the form of interest. In other cases, the investor associates with others in a coöperative undertaking

whereby he becomes a shareholder in a corporation or a member of a partnership. It is at once obvious that, as a lender, he must be adequately protected in his rights to enforce the payment of interest and principal according to the contract, at least up to the resources of the borrower; whereas in the second case, the rights and equities of the various classes of shareholders or owners in the enterprise must be safeguarded.

In countries where common law and the legal mechanism are poorly developed, the uncertainty surrounding borrowing and lending operations discourages saving and investing. The same may be said of those countries where the government's attitude toward private ownership of capital goods is hostile.

The economic order prevailing in this country, in which a large proportion of the nation's wealth is privately owned, is sometimes labeled the "capitalistic order," and often has been denounced as undesirable. Generally, proposed reforms have incorporated some form of public ownership of capital goods. Under such a system public saving is virtually substituted for private saving. Various social experiments involving the principle of public ownership of capital goods have been tried, but one of their fundamental weaknesses is the inevitable tendency to discourage all saving, and, hence, all capital accumulation. Investing in such a community, were it successfully operated, would become a public, not a private, problem.

Necessity for stabilized system of currency. Quite as important as the presence of an established order in its relation to savings is the existence of an established medium of exchange. The current medium of exchange is a measure of values, a denominator to which the relative values of all commodities are compared. Accordingly all contracts of sale, as well as contracts involving the investment of funds, are in terms of the established currency. Where this is subject to wide fluctuations, it is natural that the people should refuse to loan present funds, in terms of currency, in return for a promise to pay back the principal of the loan at a future date with interest. The value of the returned currency in terms of goods may be considerably less than at the time the loan was originally made. Thus, in Germany, during the years 1922, 1923, and 1924, it was more advantageous for the wage-earner to spend his current wages before they depreciated in value than to attempt to save them. Likewise, those who had funds to invest sought to employ them in countries where conditions were more stable rather than suffer com-

plete loss through further depreciation in the value of the mark. A similar condition existed in France, in 1925. The liability of a complete collapse of the franc tended to drive capital from that country to other countries where investment was safer.

The period 1929 to 1933 gives further evidence of the necessity for stabilized currency as a first essential to any economic system involving free exchange of goods. During this period, there was an appreciation in the purchasing power of the dollar approximating 56 per cent as at January 1, 1933. Constantly declining commodity prices with a curtailment in industrial activity placed severe hardships on debtors and caused a loss in confidence on the part of creditors except in respect to the highest-grade bonds.

Shortly after March 4, 1933, new schemes for meeting the critical economic situation, involving possible devaluation of the dollar, additions to our monetary supply, and large government borrowings for the purpose of meeting extraordinary expenses, were put forth by the Administration.⁴

An immediate effect of this legislation was a great increase in the purchase of common stocks, with a resultant rise in the Dow-Jones Industrials from a low point of 50.16 in February to 89.10 on June 1, 1933. This same period was marked by an almost complete absence of new bond financing. Regardless of the failure of high-grade bond prices to drop during this period, many private investors were reluctant to make further commitments in high-grade bonds until stability in our currency system again was evident.

Financial institutions aid savings. The existence of a well-developed financial system is another factor in stimulating savings. The growth of such institutions as the savings bank, the investment banker, insurance companies, and building and loan associations has facilitated the saving process in that they make it easy for the man with a small sum of accumulated capital to employ this in the development of large enterprises in coöperation with other small investors. The savings bank, for example, receives deposits as small as one dollar. In this way large aggregate sums are accumulated from many savers, each of whose deposits may, on the average, represent amounts so small that they could never be employed satisfactorily if held by the individual depositors, even granting that the average

⁴See Warren, G. F., and Pearson, F. A., *Prices* (New York: John Wiley & Sons, 1933), for a discussion of currency devaluation and its relation to prices.

man could make his investments wisely, which is not often the case. On the other hand, it is the business of the officers of the bank properly to invest these aggregate sums. Insurance companies operate on a somewhat similar principle. The premiums paid to the insurance company by the policyholder are supposedly based on his life expectancy. Should he live just his expected life, the premiums paid, plus accumulated interest thereon, would equal the face value of his policy. It is necessary, therefore, for the insurance company to invest its premiums from year to year at a sufficient rate of interest to bring the entire value of the payments of any policyholder up to the face value of his policy at the time he is expected to die. Whereas some of its policyholders will have a shorter life than their actuarial, or expected, life, others will live longer, so that the company, dealing with large averages, can compute accurately the premiums which it must charge for various classes of risks, in order to meet all claims. The accumulated premiums, which are one of the sources of the reserves of the insurance company, must, however, be invested at all times. The result of this process is that the holder of the insurance policy builds up an equity behind his policy which about equals his actual payments. It so happens that the interest he would have received thereon had he invested these funds himself about pays for the protection that he receives.⁵ It is for this reason that a man who has a life insurance policy is compelled to save. His premiums, however, go to swell the aggregate funds which the insurance company has at its disposal for investment purposes. We are, therefore, correct when we say that the development of insurance companies encourages capital accumulation.⁶

The investment banker serves to stimulate saving in somewhat the same way as does the savings bank. He furnishes large units of capital by purchasing from corporations large blocks of securities, sometimes whole issues. These he retails to the small investor to whom, perhaps, he will sell only one \$500 bond,

⁵It is true also, that many of the mutual companies pay dividends to their policyholders, which represent the amounts accumulated over and above death claims which result from conservative actuarial practices, or which result from earning more than the assumed rate of interest on their investments.

⁶All forms of insurance result in some capital accumulation, even though losses equal premium payments. Successful companies are compelled, by the nature of their business, to build up satisfactory reserves, which are always carried in the form of investments.

although bonds are usually issued in \$1,000 denominations.⁷ This process is sometimes carried further by means of installment sales. The investment house sells a bond to a man who pays as little as \$100 down and agrees to pay for the balance over a period of months. In this way a systematic plan of saving is forced on the purchaser. The typical investment banker does more than improve the mechanics of investing by the mere financing of issues *en bloc* and then retailing small units of stocks and bonds to the public. Since the turn of the century, and particularly during the decade 1920-1930, he was responsible for creating intensive selling effort in the security markets. During the prosperous 1920's some important investment houses used bond salesmen who practically made a "house-to-house" canvass among all classes in the community. School teachers, doctors, artisans, mechanics—anyone with as little as \$500 or \$1,000 to invest—were considered prospects. Add to this the enormous selling effort put forth in advertising and direct-mail selling, and one gets a fair picture of the impetus given by the investment banker to saving and investing. In so far as the banker offers good securities, to that extent is he performing an economic service. For those houses which canvass the small investor, however, selling costs are high, and a large margin of profit is required. As a result, such houses sometimes offer securities of doubtful value. In such cases, their selling efforts must be considered as contributing but little good, if not positive harm, to our social well-being.

Effect of corporate form of organization on capital accumulation. The development of the corporate form of business organization has also played a very important part in stimulating savings. The three distinguishing characteristics of the corporation may be summarized as follows: (1) its shareholders enjoy limited liability; (2) commonly, its life is perpetual; and (3) ownership or investment therein is represented by divisible shares or by bonds. Each of these characteristics has been influential in encouraging investment and the growth of large-scale undertakings.

Under the partnership each partner is liable for the debts of the partnership without any limit beyond his own ability to pay. It is out of the question, therefore, to expect that a large group of partners could ever be found for a specific under-

⁷ Sometimes bonds are issued in denominations as low as \$100.

taking requiring a big investment, as the building of a railroad. Too much would depend on the financial ability and integrity of the other partners. Furthermore, partnerships are formed for a definite period, and, in any event, they terminate on the death of any one of the partners. Finally, the disposition or transfer of one's interest in a partnership is difficult and cumbersome from a legal standpoint. In a corporation, on the other hand, ownership is represented by shares of stock, title to which may be transferred by indorsement. Bonds, which are evidences of debt, may be payable to bearer, in which case ownership follows the bond itself. It is not difficult to see where such a form of business organization has greatly encouraged private saving and investment by opening to the individual a wide range of opportunities for the commitment of funds. Some idea of the importance of the corporation as a factor in our industrial development may be had by reference to statistics of the United States census on the character of ownership of manufacturing enterprises in this country.

CHARACTER OF OWNERSHIP OF MANUFACTURING CONCERNS IN UNITED STATES*

	ESTABLISHMENTS		
	Individuals	Corporations	All Others
1904.....	113,946	51,097	51,137
1909.....	140,605	69,501	58,385
1914.....	142,436	73,152	55,203
1919.....	138,112	91,517	60,476
1929.....	†	101,815	109,144

	VALUE OF PRODUCTS IN THOUSANDS					
	Individuals	%	Corporations	%	All Others	%
1904.....	\$1,702,830	11.5	\$10,904,069	73.7	\$2,187,002	14.8
1909.....	2,042,061	9.9	16,341,116	79.0	2,288,873	11.1
1914.....	1,925,518	7.9	20,183,147	83.2	2,137,769	8.8
1919.....	3,536,321	5.7	54,744,392	87.7	4,137,364	6.6
1929.....	†	...	64,900,648	92.1	5,534,147	7.9

* Data for the years 1904-1919 are from *Abstract of the Census of Manufactures*, 1919, p. 340; for 1929, *Fifteenth Census of the United States*, 1930, *Manufactures*, 1929, Vol. I, p. 95, Table 2. See Guthmann, H. G. and Dougall, H. E., *Corporate Financial Policy* (New York: Prentice-Hall, Inc., 1940), p. 10 et seq.

† In 1929 all unincorporated manufacturers were classed as "All Others."

It is not the actual growth in the number of corporations that interests one here, but the increase in the percentage of total value of products attributable to the corporate form of organization and the growth in the average size of corporations as indicated by the average output in dollars per establishment.

Thus, in 1904, 73.7 per cent of all manufactured products was turned out by corporations, whereas, in 1929, 92.1 per cent of

total output was manufactured under corporate form of ownership. To emphasize further our statement that the corporate form of organization has facilitated large-scale operations, let us consider briefly the increase in the average size of the corporate enterprise in terms of output as contrasted with the increase in the average size of the partnership in terms of output:

AVERAGE OUTPUT PER ESTABLISHMENT*

	<i>Individually Owned</i>	<i>Corporate</i>
1904.....	\$14,944	\$213,399
1909.. . . .	14,523	235,121
1914.....	13,518	258,225
1919.. . . .	25,605	598,188
1929.....	Not reported	637,437

* Sources indicated in note to preceding table.

This is conclusive evidence that the large-scale undertakings in this country have been conducted almost entirely under the corporate form of business organization. One might carry this argument one step farther and advance the theory that the investment problem as now recognized has been created almost entirely by extension in the use of the corporation as a form of business enterprise.

Thrift and savings. The habits of a nation in respect to thrift have a very direct bearing on the rate at which it can accumulate capital. No better proof of this statement can be found than our experience during the Great War. Soon after August, 1914, a growing conviction was found among economists and bankers that interest rates would thereafter increase rapidly. This reasoning was based on the assumption that the saving habits of this nation were established and that a substantial change would inevitably take place in the demand for capital. European nations would be required not only to stop all investing in the American markets but to borrow here. In fact, Europe did actually succeed in drawing between five and six billions of capital from this country during 1915 and 1916, either by the resale of United States securities in our markets here or by the flotation of government loans in this country. And, strangely enough, this was all done without any substantial increase in interest rates. The obvious explanation of this situation is found in the rapid growth in the rate of savings that took place during these years.

But what took place during these years is relatively insignificant when one considers the ease with which from three to four

times this amount was raised subsequent to our own entry into the war. Persistent and effective appeals were addressed to the American people to adopt a policy of saving. As a result, personal consumption was curtailed and funds were accumulated for the purchase of Liberty bonds.

There are many interesting observations that might be made in respect to these facts. From our standpoint, their main significance is simply this: the investor must at all times be familiar with fundamental changes in the economic habits of people. The selection of proper commitments is a detailed task; but the adoption of proper policies, which will enable him to make the most of such factors as wide swings in interest rates, changes in the direction of people's tastes and habits, and changes in the price level, requires a broad vision and a wide study of the interrelations between diverse economic forces.

Principal sources of saving. The principal sources of new capital in this country may be said to fall under three main headings: individual savings; corporate savings, that is, the surplus accumulation of private corporations operating for gain; and finally, contributions made by banking or financial institutions, such as savings banks, commercial banks, insurance companies, building and loan associations, and investment trusts. Although this list is not complete, it probably accounts for by far the greater proportion of savings in this country. An attempt to indicate the amount of saving coming from each group is difficult, for a certain amount of overlapping is inevitable. The bulk of the funds held by the third group are made up of the savings of individuals which they as "financial middlemen" are charged with investing. In addition, these institutions may, like the private, non-financial corporations which make up the second group, contribute to the national savings fund by surplus accumulations. Although we shall examine estimates of the total of all savings in the United States, and the apparent savings from important groups of institutions, the preceding difficulties and inaccuracies should be borne constantly in mind.

National income and savings. There is unquestionably a very close relationship, under normal conditions, between the size of a nation's income and the rate at which it accumulates capital. In fact, it is desirable, when discussing the total savings of a nation, to consider at the same time its income.

One of the first intensive studies of our national income and

the amount of annual savings was the study made by Willford I. King. The table shown below, according to Dr. King, shows the total national income and the income saved from 1909 to 1918, inclusive:⁸

TABLE SHOWING NATIONAL INCOME AND SAVINGS IN
UNITED STATES: 1909-1918

(Millions of Dollars)

Year	Total National Income Measured in 1913 Dollars	Total Na- tional Income Measured in Dollars of a Given Year	Total Na- tional Savings Measured in Dollars of a Given Year	Total National Income Saved in 1913 Dollars
1909	30,608	29,259	5,001	5,231
1910	32,176	31,471	5,387	5,509
1911	31,397	30,904	4,221	4,289
1912	33,985	33,807	5,272	5,298
1913	35,436	35,436	4,879	4,880
1914	33,067	33,401	4,183	4,140
1915	35,150	35,920	7,542	7,381
1916	41,669	45,861	12,547	11,401
1917	42,377	54,664	9,237	7,162
1918	38,830	59,930	-1,844	-1,196
Total	354,695	390,653	56,425	54,095

If we assume that the estimate of annual income saved as computed by Dr. King is correct, it appears that the capital accumulation of the people of the United States amounted, on the average, to about \$5,400,000,000 annually during the period studied, based on 1913 dollars; that is, if measured in dollars with the 1913 purchasing power. Estimates of annual income for the years 1919 to 1928 show an upward trend.⁹ In 1925, a fairly normal year, the annual savings of the country, in current dollars, were estimated at \$10,000,000,000.¹⁰

With the onset of depression in the early 1930's, total savings

⁸ King, Willford I., "The Net Volume of Saving in the U. S.," *American Statistical Journal*, Vol. 18, New Series 140; Vol. 18, p. 467. The figures given here for national income are a later revision of similar studies made by the National Bureau of Economic Research (see Vol. 1 of *Income in the United States*). For a much higher estimate see Friday, David, "Wealth, Income, and Savings," *Annals of the American Academy of Political and Social Science*, January, 1920, pp. 34-43.

⁹ King, Willford I., *The National Income and Its Purchasing Power* (New York: National Bureau of Economic Research, 1930), p. 77. Estimated national income in 1913 dollars: 1919, \$38,017,000,000; 1923, \$45,164,000,000; 1928, \$54,022,000,000.

¹⁰ Copeland, Morris A., in *Recent Economic Changes* (New York: National Bureau of Economic Research, 1929), Vol. II, Chapter XII, p. 759, estimates that, in 1925, one sixth of total income (\$82,000,000,000) was "saved" . . . that is, there were savings of \$13,000,000,000.

disappeared and the balance became a negative one.¹¹ Individuals drew on accumulated funds and corporations paid out dividends in excess of current earnings. The decade as a whole was in marked contrast to the 1920's.

Savings are not characteristically hoarded but result in goods, services, labor, materials, and managing ability which are diverted from the production of goods for immediate consumption to the creation of railroads, machines, factories, public utility plants, and similar durable goods so that there is an aggregate increase in productive machinery. It is distinctly an investment problem to determine the channels into which this annual accumulation shall be poured. Shall extensions be made to automobile factories, shall more cotton mills be erected, shall more steamships be built, and so on? We have spoken of this as a "problem." It is, both from a social and an individual standpoint. It will be well for the student, at an early stage in his approach to the subject, to grasp the importance of first determining the lines of activity that offer the most secure opportunities for the employment of additional capital.¹² For example, the stocks of cotton and woolen textile mills have, since 1924, been held in ill repute. Nor does the industry hold out any very large attractions for the future.¹³ This situation may be compared with that in the electric light and power industry, where room for expansion still exists. Therefore, in so far as the

¹¹ Pertinent data may be found in (1) Goldsmith, R. W., and Solant, W., *The Volume and Components of Saving in the United States, 1933-1937* (New York: National Bureau of Economic Research, 1939); (2) Gainsbrugh, Martin R., *Total Individual Savings, Liquid and Investment, 1900-1939* (New York: National Industrial Conference Board, 1940); (3) Kuznets, Simon, *Commodity Flow and Capital Formation*, Vol. I (New York: National Bureau of Economic Research, 1938).

¹² In fact, a brief survey may easily be made of typical lines of industry. One may do this by listing the five leading individual concerns in the lines or industries selected and plotting their aggregate profits for the past ten years. One may follow this with a more detailed study of the industry itself. In such an analysis the student will do well to consider the organization within the industry, the character of plant required, how far large-scale production can be carried advantageously, to what extent business failures have occurred in the industry during the past ten years, what the public demand is for the product, whether the industry supplies a necessity or a luxury, and so on. A series of excellent studies of industries is found in Fraser, C. E., and Doriot, G. F., *Analyzing Our Industries* (New York: McGraw-Hill Book Co., 1932). Having made such a study, one is in a position to avoid certain classes of securities entirely and to take advantage of those which offer the greatest opportunities.

¹³ For complete current statistics on cotton textiles, see the yearbooks of the National Association of Cotton Manufacturers.

proper selection of industries for investment purposes is concerned, the savings of the country will represent extensions in the productive equipment of those industries whose products are most sought by the consuming public.

Changes in distribution of wealth and savings. The savings of the American people, as we have seen, represent accumulated wealth. The total wealth of the United States in 1937 has been estimated at \$315,800,000,000. This total included real property with its improvements at \$166,200,000,000, so that a substantial fraction would be land rather than capital in the economic sense as defined here.¹⁴ Fundamental changes, however, have taken place in the distribution or ownership of this wealth. Going back to about 1900, one finds a distinct concentration in the hands of a very small part of the population. It has been estimated that at that time four fifths of the population owned but 10 per cent of the national wealth; 18 per cent of the population, comprising the upper middle class, owned one third; and 2 per cent, comprising the wealthy class, possessed nearly three fifths of the total.¹⁵ It would be a logical inference that savings follow wealth and that a very small percentage of our population in 1900 was responsible for the total savings of the country in that year.

Within more recent years, however, there appears to have been a distinct tendency toward a wider distribution of our national wealth. Indications of this tendency are found in the increased number of people in the United States owning various kinds of property, as shown in the following table:

GROWTH OF PROPERTY OWNERSHIP IN THE U. S.:

Year	1900-1930*				
	(Thousands)				
	<i>Home Owners</i>	<i>Building & Loan Shareholders</i>	<i>Security Owners</i>	<i>Savings Depositors</i>	<i>Life Insurance Policy Owners</i>
1900	7,254	1,495	4,400	5,370	7,725
1905	8,169	1,687	5,700	6,464	12,182
1910	9,084	2,217	7,400	9,005	16,159
1915	9,975	3,335	8,000	16,125	23,163
1920	10,867	5,027	12,000	22,415	36,032
1925	12,435	9,887	16,000	43,850	52,798
1930	14,002	12,337	22,000	52,729	66,568

* Doane, R. R., "Summary of the Evidence on the National Wealth and Its Increasing Diffusion," *Annals*, Vol. 46, p. 116 (July 26, 1935).

¹⁴ *The Economic Almanac for 1940* (New York: National Industrial Conference Board, 1940), p. 296. For other data on wealth, see pages 10-11 above.

¹⁵ King, Willford I., *Wealth and Income of the People of the United States* (New York: The Macmillan Co., 1915), pp. 80-82.

Some corroborative evidence along these lines is also found in the decreasing amounts of total income received by the wealthy classes. It is estimated that in 1913, the highest 5 per cent of income receivers accounted for 33 per cent of the total national income,¹⁶ while in the years 1923-1926, the same amount of income was distributed among the upper 10 per cent of income receivers.¹⁷

If we were to generalize on the basis of the preceding facts, we should conclude that the contribution to annual savings made by that part of the public regarded as the middle class is becoming of increasing importance. This fact has already been recognized in a practical way by investment bankers who have increased their sales efforts among this group of investors, and who have helped to devise investment trusts in order to provide diversification for the small investor.¹⁸ Those financial institutions which provide the small investor with investment diversification and management have grown remarkably in recent years. The investor of moderate means is likely to continue an important contributor to the capital fund.

One may also draw the conclusion that the so-called "thrift movement," popularized during World War I and developed since that time, is resulting today in a substantial addition to the supply of capital in this country and may be one of the more important factors that are responsible for lower interest rates.

Corporate savings. Another important source of savings on which some statistical information is available is the annual net earnings of domestic corporations and other forms of business organization, which are not declared as dividends, but which are carried to surplus. It is the customary practice of American corporations to set aside a certain portion of annual earnings to provide for expansion. That the amount so saved is large in prosperous years is indicated by the following table, which also shows savings by unincorporated concerns: ¹⁹

¹⁶ *Income in the United States*, National Bureau of Economic Research, 1921, Vol. 1.

¹⁷ Copeland, Morris A., *Recent Economic Changes* (New York: National Bureau of Economic Research, 1929), Vol. II, Chapter XII, p. 836. A substantially similar figure (34.6%), based upon the researches of King, Doane, and Von Szeliski, is presented as the estimate of income of the richest 10 per cent of the income receivers in 1929 (Cleveland Trust Company *Bulletin*, September 15, 1934).

¹⁸ Chapter 21 deals with the present development of investment trusts in this country.

¹⁹ For other figures, see Fabricant, S., *Recent Corporate Profits in the United*

BUSINESS SAVINGS IN THE UNITED STATES: 1919-1938*

(Millions of Dollars)

Year	Net Earnings	Dividends and Entrepreneurial Withdrawals	Total Savings	Savings by Corporations	Savings by Unincorporated Enterprises
1919	22,981	18,087	4,894	3,495	1,399
1920	19,385	16,356	3,029	1,534	1,495
1921	10,357	13,472	- 3,115	-2,782	- 334
1922	14,758	12,763	1,995	1,747	249
1923	17,835	14,434	3,401	2,528	873
1924	18,329	15,571	2,758	1,575	1,183
1925	21,323	16,837	4,486	2,957	1,529
1926	20,586	17,012	3,574	2,335	1,238
1927	19,523	17,296	2,227	1,118	1,108
1928	21,821	18,043	3,778	2,479	1,299
1929	22,353	18,881	3,472	2,320	1,152
1930	12,004	16,908	- 4,904	-4,255	- 648
1931	2,793	13,134	-10,341	-7,327	-3,014
1932	- 1,681	9,338	-11,019	-8,001	-3,018
1933	3,272	9,120	- 5,848	-4,481	-1,368
1934	7,124	10,623	- 3,499	-2,510	- 989
1935	10,320	12,031	- 1,711	-1,253	- 459
1936	13,733	14,393	- 660	- 800	139
1937	14,522	15,425	- 903	- 960	57
1938†	10,797	13,315	- 2,518	-1,851	- 666

† Preliminary.

* Osborne, Harlowe D., *Savings in the National Income*, Conference Board Economic Record, Vol. 11, March 22, 1940. (New York: National Industrial Conference Board), p. 105.

Because the table combines those corporations which reported deficits with those reporting a net income, the dividend distributions need not have represented deficits for the particular companies which made such payments. However, the tendency to base dividends upon earnings of the preceding period does have the result ordinarily that dividends exceed current earnings in a period of falling profits.²⁰

States, p. 10; National Bureau of Economic Research, *Bulletins 50 and 55, Profits, Losses and Business Assets, 1929-1934*, p. 7; Nathan, R. R., *Income in the United States: 1929-1937* (Washington, D. C.: Dept. of Commerce, 1938), Tables 1, 3, 4, pp. 17-19. See also Nerlove, S. H., *A Decade of Corporate Incomes, 1930 to 1939* (Chicago: University of Chicago Press, 1932), Chapter X. This chapter also discusses the place of depreciation and depletion, as well as reinvested surplus and new financing, as a source of new asset acquisitions. Estimates of corporate savings for earlier years back to 1909 may be found in King, Willford I., *The National Income and Its Purchasing Power* (New York: National Bureau of Economic Research, 1930), p. 280.

²⁰ The reader interested in economic analysis should note that these figures are based on statistics of income reported to the Internal Revenue Bureau, that they are unadjusted for changes in the purchasing power of the dollar, and that they include capital gains and losses.

Significance of corporate savings to investor. To the student of investments these figures carry a somewhat wider significance than that of merely indicating the amount of savings accumulated in this way. The amount credited to the surplus account of a corporation in any given year is precisely the same as an equivalent investment in the corporation by the common stockholder. Sooner or later this investment should come back to him in the form of an appreciation in the market value of his stock, or as a stock dividend. The current cash return on a share of stock, therefore, is a less important guide to its intrinsic worth than is its earning power.²¹ The large surplus accumulations during the war years 1917-1918, and in 1919, were the basis for stock dividends during 1921 and 1922. Subsequent accumulations during the 1920's, while less spectacular, were nevertheless relatively large. Even during the 1930's many individual companies, particularly in the industrial field, showed continued growth. It is for this reason that the stockholders of conservatively managed companies receive, at fairly regular intervals, "melons" in the form of stock dividends, stock split-ups, or subscription rights.²²

Financial institutions and savings. A third source of capital funds which must be mentioned briefly comprises financial institutions, such as banks, insurance companies, building and loan associations, and so forth. Some of the functions of these institutions have already been discussed in part. We shall, however, at this time, devote further attention to the relation of such institutions to the savings process.

Let us consider first the commercial banks. These banks not only assemble capital from a number of individuals but also manufacture credit within certain limits. Cash, left on deposit, constitutes the basis for loans considerably in excess of the amount of cash, or reserves, held at any one time. The process of loaning in this way, however, presupposes borrowers who discount their notes with the bank and who receive therefor deposit

²¹ *Income in the United States*, National Bureau of Economic Research, 1922, Vol. II, p. 324. A study of the years 1910-1920, inclusive, indicated that the average net earnings retained for surplus by American corporations were 38.3 per cent, the range for individual years running from 22.1 per cent in 1914 to 57.3 per cent in 1916.

Dividends and earnings for leading corporations are given in Alfred Cowles 3rd and Associates, *Common Stock Indexes, 1871-1937* (Bloomington, Ind.: Principia Press, 1938). A graphic presentation of these dividends and earnings is given in *Econometrica*, Vol. 8, p. 355 (October, 1940).

²² For further discussion of the significance of reinvested earnings on common stock values see Chapter 13.

credits or bank notes. The credit so advanced gives these borrowers purchasing power which may be used to buy capital goods. While in theory the commercial loan is supposed to be liquidated over a short period, it is nevertheless true that a relatively large amount of such credit is used constantly and so constitutes a part of supply of capital funds, whether used directly by a borrowing business or indirectly when it enables individuals to purchase stocks and bonds. We must, therefore, consider commercial banks in discussing the sources of capital in the country. Furthermore, we find the banks themselves frequently utilizing their resources in purchasing certain bonds in the open market and carrying these for considerable periods of time.

Some idea of the scale on which current operations of this nature are conducted by commercial banks of this country may be had from the following table:

ASSETS AND LIABILITIES OF COMMERCIAL BANKS IN THE
UNITED STATES: JUNE, 1939*

	<i>All Commercial Banks</i>	<i>National Banks</i>	<i>State Banks</i>	<i>Private Banks</i>
Number of Banks.....	14,536	5,203	9,269	64
<i>Assets</i> (Millions of Dollars)				
Loans and Discounts (including re- discounts and overdrafts)....	16,424	8,553	7,800	71
Investments.....	22,945	12,528	9,875	542
Bank Premises, Furniture.....	1,134	607	525	2
Other Real Estate.....	478	141	336	1
Currency and Coin.....	932	527	400	5
Balances with Other Banks....	18,896	10,534	8,232	130
Customers' Liability on Acceptances	120	52	53	15
Other Assets.....	421	176	236	9
Totals	<u>61,350</u>	<u>33,119</u>	<u>27,456</u>	<u>775</u>
<i>Liabilities</i>				
Deposits.....	53,793	29,416	23,712	665
Bills Payable and Rediscounts. .	26	4	21	2
Acceptances Outstanding.....	138	58	65	15
Other Liabilities.....	500	260	236	4
Capital Stock†.....	3,123	1,559	1,522	42
Surplus.....	2,502	1,169	1,305	28
Undivided Profits.....	827	449	377	1
Reserves.....	442	205	218	19
Totals	<u>61,350</u>	<u>33,119</u>	<u>27,456</u>	<u>775</u>

* Report of the Comptroller of the Currency, 1939, pp. 228, 248, 268.

† Includes capital notes and debentures.

With \$53,800,000,000 of deposits and \$6,900,000,000 supplied by stockholders in the form of capital stock, surplus, and reserves, the commercial banks have made some \$16,400,000,000 of loans and \$22,900,000,000 of investments. However, the ability of the commercial banking system to make loans and create deposits on the basis of primary reserves and so to "manufacture" credit should be recognized in the study of such figures. In this way, funds that are not dependent on savings can be made available for business or government spending.

Quite different in their relation to the accumulation of capital funds are savings banks, insurance companies, and building and loan associations. Such institutions have no power of expanding credit operations. As we have seen, they function rather as middlemen, collecting the savings of many individuals and investing such funds in long-term securities—such as bonds and real estate loans, for the most part. Their importance, therefore, lies in their ability to mobilize a large number of small accounts into a sizable fund, and to direct the investment of such a fund. Insurance companies not only accumulate funds somewhat in this way, but also offer protection against certain risks. Their investment function, however, is similar to that performed by savings banks.

The principal items in the consolidated statement of the savings banks of the country are "loans and discounts" (chiefly first mortgage loans on real estate) and "investments" (chiefly bonds) on the asset side, and "individual deposits" on the liability side. The combined loans and discounts and investments of the 552 mutual savings banks on June 30, 1939, amounted to \$10,249,000,000, while combined deposits were \$10,433,000,000.²³ These figures indicate that between 10 and 11 billion dollars was assembled by these thrift institutions from small savers and invested for the most part in high-grade bonds and first mortgages on real estate.

As a factor in assembling savings, the life insurance companies of the country today exercise as great an influence as the savings banks. In fact, life insurance companies have, since the turn of the century, developed at a remarkable rate, total assets having increased from \$1,742,414,000 in 1900 to \$23,216,000,000 in 1935.²⁴ Partly on account of stricter supervision and partly on

²³ *Report of the Comptroller of Currency, 1939*, p. 238.

²⁴ *Statistical Abstract of the United States, 1939*, p. 294.

account of wider participation, the character of life insurance investments showed a distinct change during this period.

ASSETS AND INVESTMENTS OF LIFE INSURANCE COMPANIES
IN THE UNITED STATES*

(Millions of Dollars)

	1900	1910	1920	1925	1930	1935
Total Assets	1,742	3,876	7,320	11,538	18,880	23,216
Real Estate Mortgages . . .	501	1,227	2,175	4,799	7,578	5,340
Real Estate	158	173	172	266	548	1,986
Stocks Owned	795	130	51	81	466	531
Bonds Owned	7	1,660	3,589	4,331	6,352	9,965
Premium Notes and Loans	89	495	859	1,446	2,807	3,540

* *Statistical Abstract of the United States, 1939, p. 294.*

In 1900, real estate mortgages and bonds constituted less than 30 per cent of total assets, while stocks made up about 45 per cent of total assets. In 1935, however, real estate mortgages and bonds comprised 60 per cent of total assets, while stocks owned amounted to less than 3 per cent.²⁵

Although differing from savings banks in the detail of their operations, building and loan associations also accept savings from individuals and lend on first mortgages. According to the usual plan under which these associations operate, the borrower makes regular monthly payments, which cover interest and loan repayment, so that if the program is completed the mortgage is entirely repaid without any renewals during the life of the debt. Investors may purchase either installment or paid-up shares. In the former case, the shareholder opens an account with the association and makes an initial payment and regular monthly payments thereafter. In an association which paid three per cent dividends per annum on the accumulated credit balance, a purchaser of ten shares of \$100 par value depositing \$5 a month would receive \$1000 at the end of 13 years and 7 months. Paid-up shares may be purchased by payment of the full par value and receive cash dividends. The funds which these associations have at their disposal are almost entirely invested in real estate mortgage loans. They have experienced a rapid growth in the United States during recent years—until interrupted by the depression of the 1930's. In 1930, membership and assets reached a peak, membership aggregating 12,336,754 persons and assets amounting to \$8,824,119,000, distributed

²⁵ For a statement of the reasons for this investment policy, see page 104.

among 11,767 associations. By 1938, membership had fallen to 6,810,481 persons and assets to \$5,621,126,000.²³

Other sources of savings. There are many other sources of capital accumulation less susceptible of accurate statistical measurement. Probably there is a substantial reinvestment of income each year on the farms of this country. Such portion of current income as is not used by the owner of a farm is available for investment, and it is a reasonable assumption that a proportion of such excess income is actually invested by the farm owner in his own enterprise. The annual savings which are reflected in home dwellings are not easily measured, but they represent a form of capital accumulation. It is, of course, inaccurate, when considering accretions to the value of farm property and urban real estate, to include appreciation in land values, other than in the form of actual improvements. A mere appreciation in land value is in the nature of an unearned increment. From the individual's point of view it is added wealth, but from a social standpoint there has been no creation of new goods.

Our discussion might be extended to include the savings of fraternal orders and other forms of coöperative insurance, religious and charitable organizations, and educational and endowed institutions. No doubt, the aggregate savings from such sources are large, and, to a certain extent, represent accumulation quite apart from that of individuals. This is true to the extent that the return on endowment funds is not entirely spent in current operations. Complete and reliable information, however, is lacking as to what the total from such sources is.

Summary. The primary sources of saving are individuals, corporations, and endowed institutions, although commercial banks may be said to create a distinct fund of capital through current operations. Insurance companies, savings banks, building and loan associations, and other similar agencies, while creating capital through accumulation of reserves, act essentially as media through which individual savings are collected, and, as such, cannot be said to contribute directly to the supply of capital of the country.

²³ *Statistical Abstract of the United States*, 1939, p. 269.

The Demand for Capital

Productivity of capitalistic processes and demand for capital. The demand for capital comes largely from individuals and corporations engaged in business undertakings, and from governments. It is true that loans for consumption purposes figure in the total demand for capital, but the aggregate of such loans is relatively small. In any event, we are concerned primarily with such capital requirements as find expression in the security markets of the world, and these are based almost entirely on the borrowing operations of governments, or of individuals or corporations, which expect to use productively the capital they secure.

The normal, or business, demand for capital arises primarily because indirect methods of production are more productive than direct. Command over capital, however, is necessary in order to utilize and extend such methods of production. It is this essential fact that gives rise to the normal demand for capital, and it is the extent to which profitable uses can be made of capital that determines the intensity of this demand at any given time, and, hence, the rate of interest or price that can be offered for capital.

Factors affecting demand for capital: changes in population and inventions. A statistical measurement of the total demand for capital at any given time would be exceedingly difficult, although it is possible to indicate fundamental changes in economic environment which may act to stimulate or to depress this demand. For instance, a normal growth in population will, *per se*, give rise to a greater demand for capital funds; but at the same time total savings normally increase, so that it is quite possible for interest rates to remain constant at the same time

that population grows. In fact, capital may be, and usually is, in progressive countries, accumulated at a rate more rapid than that shown for the growth of population. This occurs because progressive nations, through the extension of capitalistic methods of production, increase output, and, hence, total income, at a rate that permits larger and larger *per capita* savings. Under such conditions the rate of interest would tend to fall were it not for advances in the arts and sciences, which call for capital investments on a growing scale, in order to turn out an ever-increasing variety of goods and services for the consumer.

Growth of new industries: the motor industry. Somewhat analogous to developments in the arts and sciences in its effect on the demand for capital is the growth of new industries. This is, indeed, an everyday phenomenon frequently overlooked, yet each new industry that comes into existence creates wider opportunities for the effective use of capital and thus contributes to the total demand therefor. A few selected cases will suffice to illustrate this point. The motor industry may be considered as a product of the present century. In 1899 the census reports a capital investment therein of only \$5,769,000. In 1909, however, the figure for invested capital stood at \$173,837,000; in 1919, \$1,780,949,000.¹ The effect of so rapid a development, with its accompanying demands for capital, would tend to maintain or to increase interest rates.²

The total capital requirements for all manufacturing enterprises of the country have not increased at the same rapid rate as that shown for special industries, such as the automobile industry, yet the capital employed in manufacturing in this country increased fivefold from 1899 to 1919. The actual capital employed for selected years during this period is shown in the following table:

¹ The Census Bureau discontinued the collection of statistics on capital invested in manufactures after the 1919 census. The census figures shown above include investment in the manufacture of bodies and parts as well as automobiles. The National Automobile Chamber of Commerce (*Facts and Figures of the Automobile Industry*, 1931, p. 86) estimates the capital invested in the industry, exclusive of bodies and parts, at \$1,015,443,338, in 1919, and \$1,880,808,233, in 1930.

² Note, however, that a successful industry of this type would tend to earn a high rate of return, which, if utilized to finance the expansion of assets rather than to pay dividends, would result in no demands being made upon the ordinary capital markets. The Ford Motor Company illustrates this point. Such financing depends upon whether or not the rate of retained profits is as high as the rate of expansion of capital goods.

CAPITAL EMPLOYED IN MANUFACTURES*

(000 omitted)

Year	Amount
1899	\$8,975,256
1904	12,675,581
1909	18,428,270
1914	22,790,980
1919	44,466,594

* *Statistical Abstract of the United States*, 1923, p. 289.

Comparable figures are lacking for subsequent years, but the following data, compiled from the Treasury Department's *Statistics of Income* by Moody's Investors Service, would indicate a capital accumulation, at book value, of approximately \$92,000,000,000 in 1930:

COMBINED CAPITAL STRUCTURES OF
INDUSTRIAL CORPORATIONS IN THE
UNITED STATES, 1936*

(Millions of Dollars)

Bonded Debt and Mortgages	11,437
Preferred Stock	7,807
Common Stock	33,847
Surplus	17,849
Total	70,940

* *Statistical Abstract of the United States*, 1939, pp. 198-199.
Includes Manufacturing, Mining, Construction, Trade, Service

Public utility industry. The public utility industry, particularly the electric light and power division, has undergone phenomenal growth until very recently and made heavy demands for capital funds. The census figures in the following table portray vividly the rapid increases in the value of plant and equipment:³

VALUE OF UTILITY PLANT AND EQUIPMENT: 1902-1937

(Millions of Dollars)

Year	Electric Light and Power	Electric Railways	Telephones	Telegraphs	Total
1937	12,638	—	5,000	507	—
1932	12,564	4,268	4,735	506	22,173
1927	9,297	4,297	3,475	427	17,496
1922	4,465	5,447	2,130	327	12,368
1917	3,060	5,532	1,436	243	10,272
1912	2,176	4,715	1,081	222	8,194
1907	1,097	3,779	820	210	5,906
1902	505	2,308	389	162	3,364

³ *Moody's Manual of Investments: Public Utility Securities* (New York: Moody's Investors Service, 1940), p. a3. See this source for qualifying comments on the table and for statistics on other aspects of growth.

During the decade of 1921-1930, the electric light and power industry issued securities approximating a billion dollars a year. The telephone industry also put out substantial issues. Since 1930 expansion of plant and transmission lines in these two public services have been chiefly provided from sums made available by depreciation allowances and the retention of earnings. The electric railways are no longer an important factor in the demand for capital, although their former importance in this respect is apparent. The capitalization of gas companies increased from \$567,000,000 in 1899, to \$916,000,000 in 1909, and \$1,466,000,000 in 1919. Growth continued during the 1920's, but at a much lower rate than was characteristic of the electrical industry.⁴ There has been little expansion of gas facilities since 1930.

Steam railroads. Our steam railroads have also been required to extend their facilities to keep pace with our rapid industrial growth and the spread of population westward. The rate of growth here is certainly less phenomenal than in some of the newer industries, but the total capital requirements have probably been the largest of any individual industry in this country. The total capitalization of all railroads reflects the growth of this industry. From a figure of \$11,491,000,000 in 1900, the total mounted to \$18,417,000,000 in 1910, to \$21,891,000,000 in 1920, and to \$24,331,000,000 in 1930. Since then, changes have been slight and chiefly the result of debt retirement and reorganization. The figure for stocks and bonds outstanding is somewhat lower than that for property investment, because of the use of surplus to build up the latter.⁵

The essential point to be kept in mind at this time in regard to all these figures is that the increasing variety in human wants, industrial progress, inventions, and improvements in the arts and sciences all increase the demand for capital by making its use more profitable; in the words of the economist, "by increasing the marginal productivity thereof." We might perhaps make our point clearer if we were to state that, when the demand for the products of an industry increases sufficiently, when methods of production are devised which increase output or lower cost, or

⁴ The United States Census Bureau has discontinued the collection of capitalization figures for gas companies since 1919. Data are difficult to compile, because in many cities the gas business has been merged with the electric company. For other data on the growth of the gas industry, see *Moody's Manual of Investments: Public Utility Securities*, 1940, p. a39.

⁵ *Statistical Abstract of the United States*. 1934. pp. 353-354.

when new machinery is invented which accomplishes the same ends, the demand for capital funds is correspondingly augmented. Indeed, this process is going on at all times, and provides the opportunities for the profitable employment of new funds. Let the development of new industries cease, or let extensions and improvements in present industries subside, and the process of finding satisfactory employment for capital becomes increasingly difficult as during the late 1930's.

Annual security flotations: domestic corporations. A fairly good picture of the recent annual capital requirements of all domestic corporations may be derived from a study of corporate security flotations. Total figures, however, fail to give an accurate picture, since they include both new issues, that is, issues to provide for extensions, and additions to new properties, as well as refunding issues. The latter type of security does not represent a real additional demand for capital, since the proceeds therefrom are used to retire other securities already in the hands of the investing public. In the following table only new capital flotations are given:

NEW CAPITAL ISSUES OF DOMESTIC CORPORATIONS*

(Millions of Dollars)

1910.	1,518†	1932.	325
1920.	2,562	1933.	161
1925.	3,605	1934.	178
1928.	5,346	1935.	404
1929.	8,002	1936.	1,192
1930.	4,483	1937.	1,227
1931.	1,551	1938.	371

* *Statistical Abstract of the United States*, 1926, pp. 805-306; 1934, p. 278; 1939, p. 306.

† Includes some refunding issues.

The increase between 1910 and 1920 is attributable partly to the rise in the price level during the interval. The large issues of the 1920's, however, are an index of that prosperous decade and in marked contrast with the depressed 1930's.

Government requirements: nature of government borrowing. Up to this point we have neglected to consider the capital requirements of our national government and divisions thereof—state, county, and municipal. Before we come directly to a discussion of the extent of this demand, however, we shall pause for a moment to examine the social aspects of public, as compared to private, borrowing. By far the largest portion of private borrow-

ing is undertaken for purposes of extending production. This does not necessarily apply to public borrowing, and for this reason in any discussion of the latter some attention ought to be given to the purposes for which loans are made. Our position here is correct, even though the question of purpose does not, in the first instance, affect the total demand for capital. . . From a social standpoint, on the other hand, there is a sharp distinction between loans made for unproductive purposes, such as carrying on a war and financing various governmental activities of a social or economic nature, and loans made purely for productive purposes, such as the erection of schools, roads, bridges, or other public improvements. In the first case, there is a destruction of capital; materials and resources are used in the prosecution of a war and are consumed once and for all; in the second case there may be a complete loss of social capital. Quite different is borrowing for the purpose of building, say, the Panama Canal, roads, schools, buildings, and the like. Here the social gain differs but little from that which results when private enterprises borrow in order to create productive facilities. There has been a social saving, and a corresponding increase in the sum total of social capital.

Our national debts. Bearing this distinction in mind, we shall consider briefly the extent of the public demand in this country for funds during recent years. For the decade prior to World War I, the total indebtedness of our national government averaged between \$800,000,000 and \$1,000,000,000, a considerable portion of which had been incurred for productive purposes. A very large increase in our total national debt took place, however, during and after 1917, until August 31, 1919, when the interest-bearing debt stood at \$26,358,692,000. After that date there was a gradual reduction until on December 30, 1930, it amounted to only \$16,026,086,655. Since December, 1930, the trend has been reversed; by the end of 1940, the amount had risen to \$41,400,000,000.⁶ Most of the debt outstanding in 1930 represented amounts spent in the prosecution of the World War, either directly as war expenditures or indirectly as loans to the Allies. The increase in the years immediately thereafter was chiefly the result of the relief activities of the Federal Government. Fur-

⁶ *Commercial and Financial Chronicle*, Vol. 150, p. 382. See also Chapter 23, "United States Government Obligations and Instrumentalities."

ther large increases appear inevitable in order to finance our huge national defense program.

State and municipal borrowing. The capital requirements of our state governments and municipalities, on the other hand, have been increasing rather than decreasing since the war. Prior to the year 1919 the total flotation of municipal and state issues did not exceed in any one year the half-billion mark, while, for the eleven consecutive years, 1921 to 1931, inclusive, total annual sales of municipal and state securities exceeded the billion-dollar mark, a figure which still obtains since the decline in the depression years 1932-1934.⁷

STATE AND MUNICIPAL BOND SALES IN THE UNITED STATES

(Millions of Dollars)

1905.....	183	1933.....	520
1910.....	320	1934.....	939
1915.....	499	1935.....	1,220
1920.....	683	1936.....	1,117
1925.....	1,400	1937.....	902
1930.....	1,487	1938.....	1,100
1932.....	849	1939.....	1,126

Various reasons have been set forth for this rather imposing increase in state and municipal borrowing. It is claimed by some that the ease with which tax-exempt securities could be floated during this period was the primary cause. When surtaxes ran high, large individual investors found it highly advantageous to purchase bonds, the interest on which was exempt from all income taxes. Thus was a wide market created for tax-exempt bonds of municipal corporations. Others lay the expansion in municipal indebtedness to extravagance in local government operations. The real causes are probably to be found in the demand for increased and improved services from the government by a growing population with a rising standard of living. At least there seems some evidence in favor of this view, when an examination of the purposes for which recent loans have been floated is made. The largest items for which bonds were issued during the 1920's were for the building of streets, roads, bridges,

⁷ *State and Municipal Compendium*, June 30, 1940, p. 13. Data compiled from this issue and earlier issues. Figures include some refunding issues.

and schools.⁸ These items alone accounted for about 45 per cent of all borrowing in the years just prior to 1930. The bulk of the remainder, approximately another 45 per cent, was for water works, sewerage disposal, buildings, transit facilities, parks, and miscellaneous improvements. During this period, however, there was issued by states over \$300,000,000 of soldiers' bonus bonds. Borrowing on this account was occasioned by World War I, and, since the funds so acquired were immediately turned over to the soldiers who participated in the bonus, it is hardly proper to consider these bonds as issued for capital expenditures. They represent borrowing for consumptive rather than for productive purposes and are not regarded as conforming to the canons of sound public finance. The chief reasons for the growth in municipal and state capital requirements, therefore, are to be found in the general rise in the price level and the larger expenditures necessary for schools, roads, water and light projects, and other permanent improvements of a capital nature arising out of the growth in wealth and population of the country and the rise of the automobile. The exigencies of depression finance are shown in the figures for the years following 1929. They appear in the sharp curtailment of new bond issues, the increase in the proportion of issues for refunding and funding because of the inability to retire the maturing debt from tax revenues, the de-

⁸ *Ibid.* The data for this table were compiled from this issue and earlier issues.

PURPOSES FOR WHICH STATE AND MUNICIPAL BONDS WERE ISSUED

(Percentages of Total Issued)

Purpose	1939	1938	1935	1933	1929	1928	1927
Refunding.....	17.3	11.7	29.9	10.2	1.5	1.6	1.7
Funding.....	5.8	5.6	3.8	18.9	2.0	.8	1.5
Streets, Roads, Bridges..	14.8	12.8	8.8	19.3	28.1	26.7	29.6
Schools.....	8.4	20.5	7.0	6.2	17.0	19.1	19.6
Water.....	14.3	15.2	5.7	6.6	10.1	10.5	8.2
Sewers.....	3.1	5.8	4.5	4.3	6.6	7.9	8.4
General Buildings.....	2.6	4.9	2.1	5.2	4.9	5.2	4.4
Parks.....	.3	.5	.6	1.0	2.5	3.1	2.8
Light and Gas.....	5.8	3.9	1.0	.2	1.2	.9	1.5
Improvement.....	4.9	8.7	8.1	13.5	12.9	16.9	6.0
Soldiers' Bonus.....	1.1	.3	.6	1.1	...	.3	8.6
Rapid Transit.....	3.9	3.7	2.2	.7	9.3	3.3	1.7
Public Works & Flood Prevention.....	...	1.4	1.1	.7	.8	.6	.4
Harbor & Water Front.....	...	...	...	.6	1.7	1.3	1.8
Grade Crossings, Airports....	1.3	.3	1.3	...	...	...	...
Poor Relief.....	6.0	4.5	12.1	9.5	...	...	...
Miscellaneous.....	10.4	2.2	11.2	1.8	1.4	1.9	3.3

crease in issues for improvements, and the increase in issues for relief which could not be immediately cared for by taxation.

It appears that the ease with which municipal financing could be undertaken during the years 1925-1930 caused an undue expansion of municipal, state, and county borrowing. As a result of this unwarranted tendency, one might say that we recently passed through a fourth era of municipal defaults. A very great number of municipal and county obligations went into default and the reason appears to be the ease with which borrowings could be made during the years prior to 1930. Municipal investors had little interest in examining the debt status of any of the various communities, the bonds of which they purchased. From now on we should see a much more careful analysis of municipal debt and a much better controlled investment in municipal bonds. The publication of 1940 census figures showing a slackened population growth and a shrinkage for many communities will make for greater caution in municipal bond investment. The pressure of heavy taxes upon real estate, which are the chief source of revenue to support municipal debt, is also, in many cases, a strong influence in preventing new issues.

Capital demands of foreign nations. A heavy demand for capital on the part of foreign governments and corporations was likewise being felt in our domestic markets during the 1920's. The reasons for that situation are not hard to find. Nearly all European nations were impoverished as a result of World War I. The severity of the struggle resulted in an enormous waste of capital. Furthermore, the productive powers of the populations of many European countries were substantially lessened. Hence, there was a low income and a pronounced dearth of capital goods in many of these countries. The United States, on the other hand, suffered but little in a material way, and during the post-war period actually enjoyed an increase in productive power and social income. The saving of capital in this country, therefore, increased easily. These changes resulted in the United States' becoming one of the largest creditor nations of the world. It is estimated that in 1914 the United States had invested abroad about \$1,500,000,000, whereas it owed to foreigners an aggregate sum of about \$4,000,000,000, thus leaving a net indebtedness amounting to \$2,500,000,000." In contrast to this situation let us consider briefly the present extent to which we have invested

* *Commercial and Financial Chronicle*, Vol. 123, p. 2088.

capital abroad. In the first place, foreign governments, principally those countries allied with us during the last war, owe to our government a principal sum approximating \$13,119,000,000.¹⁰ The holdings of individuals in foreign securities, chiefly government bonds, were estimated, in 1939, at \$3,785,000,000.¹¹ American corporations were estimated to have made direct investments abroad totalling \$6,985,000,000. The latter sum is represented in the American investment market by the securities of those domestic corporations which have used a portion of their funds abroad. It is natural that European nations should have looked to us for capital, in order to restore their productive power, and that we should have extended accommodation to such nations, where the security offered was properly safeguarded. Furthermore, new and undeveloped countries looked more and more to us for the capital necessary to promote their economic development. Prior to 1931, the foreign securities floated in this country averaged over a billion dollars a year, as shown in the following table:¹²

FOREIGN CAPITAL FLOTATIONS
IN THE UNITED STATES

(New Capital, Refunding Excluded)

Year	Amount
1926.	\$1,145,099,740
1927....	1,578,939,925
1928.	1,319,167,987
1929... ..	757,837,569
1930.	1,009,213,390
1931.	253,722,000
1932.	26,015,000
1933..	133,332
1934.	none

The status of foreign investments has been definitely changed during the past few years. A creditor nation, if it wishes to keep its foreign investments in good standing, must be willing to permit imports in excess of exports. Otherwise, a time will come when debtor nations will be unable to make further payments by shipping gold or incurring new debts. The United States has adhered to a policy of high tariffs. Consequently, after accumulating a large portion of the world's gold supply and disrupting

¹⁰ On March 1, 1939. *Statistical Abstract of the United States*, 1939, p. 208.

¹¹ An estimate by Taylor, Amos E., Bureau of Foreign and Domestic Commerce. *Commercial and Financial Chronicle*, Vol. 151, p. 488.

¹² Compiled from the *Commercial and Financial Chronicle*, Vol. 132, p. 383; Vol. 140, p. 22. Flotations negligible in subsequent years.

world price levels, she has found that it is increasingly difficult for her foreign debtors to meet their debt service. Foreign investments are currently held in very low esteem by domestic investors, and it is doubtful whether public flotation of foreign loans, except on a very limited scale, will be possible for some time to come.

Building operations and capital requirements. Further heavy demands for capital arise from building operations. The erection of homes, factories, and office buildings represents a capital investment and must be financed by saving from current income. Where the owner pays for the construction of the building without recourse to borrowing, no demand is exerted in the open market for funds, except in so far as his own funds which might have been offered for investment, are prevented from appearing as a supply of capital. On the other hand, where the builder or owner borrows a part of the funds necessary to acquire or to erect buildings, to that extent is a demand for capital funds created in the open market. Large structures, such as office buildings and hotels, have for some time been financed by the issue of bonds, secured by mortgages on the property. Where the building of factories or other types of construction has been undertaken by corporations, the funds have likewise been acquired by bond issues, or sometimes by stock issues. Here, again, the demand for funds appears in the open market. The building or purchase of homes, on the other hand, has generally been financed by mortgage loans made by banks or by certain large lenders of money.

CONSTRUCTION CONTRACTS IN THE UNITED STATES*

DATA FOR 37 STATES, EXCLUDING THE 11 STATES
IN MOUNTAIN AND PACIFIC DIVISIONS

(Millions of Dollars)

<i>Year</i>	<i>Residential</i>	<i>Commercial</i>	<i>Total</i>
1925.	2,748	872	3,620
1927.. ..	2,573	933	3,506
1929.	1,916	929	2,845
1931.... ..	811	311	1,122
1933.....	249	99	348
1935... ..	479	165	644
1937.... ..	905	297	1,202
1938.....	986	216	1,202

* *Statistical Abstract of the United States, 1939, p. 862.*

Some idea of the demand for funds for building purposes is available from a study of the value of construction undertaken

annually in the United States. The most nearly complete figures available, compiled by F. W. Dodge Corporation, cover the construction contracts awarded for thirty-seven states east of the Rockies. The total figure rose from \$6,006,000,000 in 1925 to a peak of \$6,828,000,000 in 1928, thereafter declining to \$4,523,000,000 in 1930 and \$1,256,000,000 in 1933.¹³ But these totals include public utilities, factories, and public works, which would be financed as utility, industrial, and municipal projects, respectively. The term "real estate finance" is ordinarily applied to the issues covering residential and commercial real estate in which the real property rather than the credit of a business corporation is the basis of the flotation. The tabulation above shows the volume of residential and commercial construction alone. Some of the commercial construction would undoubtedly be financed from the funds of corporations engaged in merchandising, manufacturing, and finance. On the other hand, buildings for educational, social, hospital, and religious purposes, which sometimes result in the offering of real estate issues to the investor, are not included, although their importance may be ascertained from their total of \$745,000,000 in 1930.

The total number of homes not on farms in the United States, as shown for the five census years, 1890-1930, was as follows:

HOMES IN UNITED STATES NOT ON FARMS*

1930	23,235,982
1920	17,600,472
1910	14,131,945
1900	10,274,127
1890	7,922,973

* *Abstract of Fifteenth Census of the United States: 1930*, Bureau of the Census, 1933, p. 405.

The total number of homes in the United States increased from 17,600,472 in 1920 to 23,235,982 in 1930, or at an annual rate of 563,551, as compared with 346,853 in the preceding decade. Statistics of value are given only for homes which were not located on farms and which were occupied by the owners. The average (median) value of such homes, 10,503,386 in number, was \$4,778.¹⁴ While only an estimate is possible from these figures, they suggest a total value in excess of \$50,000,000,000. (In excess, because the median would be expected to be lower than the

¹³ *Statistical Abstract of the United States, 1934*, p. 764.

¹⁴ *Abstract of the Fifteenth Census, 1930*, Bureau of the Census, 1933, pp. 408-409.

arithmetic mean in this distribution.) Values were not sought for rented homes, but the average (median) rental per month amounted to \$27.15, which amount suggests a considerably lower value than that obtained for owned homes.

In 1920, the total value of the 2,855,117 owned homes which were mortgaged was estimated at \$14,099,000,000, and the total mortgage debt at \$6,000,000,000.¹⁵ On the basis of these figures, the average owned and mortgaged home was valued at \$4,938 in 1920. If an average of \$4,850 could be used in estimating the value of the 563,551 homes added annually during the decade of 1920 to 1930, the result would be \$2,733,000,000 per year. The use of such a figure as a measure of capital need is open to obvious objections: (1) the average used is based only on owned and not on rented homes; (2) part of the change in total value figures between any two dates is likely to be the result of fluctuations in land values and the price level; and (3) buildings included in the 1920 total were subject to depreciation, obsolescence, and actual retirement, so that any increase by 1930 would not include new building in the interval but only net increase.

Something of the contrast between home construction during the 1920's and the 1930's may be appreciated when it is noted that the average annual volume of single-family dwellings dropped from about a half million units in the former period to 142,000 for the period 1930-1938. The figure reached a low of 39,000 in 1933 and recovered to 260,000 in 1938.¹⁶ The change reflected depression and slackened population growth. In the future, replacements resulting from depreciation and obsolescence, and housing to care for shifts in population from one area to another, will be more important than construction for an expanding population.

During the first half of the 1920 decade, long-term real estate bonds, issued to provide funds for business buildings, hotels, and apartment houses, rapidly increased in popularity as a vehicle of investment. The annual totals of such bonds increased from \$160,000,000 in 1922 to \$696,000,000 in 1925.¹⁷ In the four succeeding years flotations ran around \$700,000,000 annually.¹⁸ In

¹⁵ *Mortgages on Homes in the United States, 1920*, Bureau of the Census, 1923, p. 43.

¹⁶ *Seventh Annual Report of the Federal Home Loan Bank Board* (1939), p. 166.

¹⁷ *Commercial and Financial Chronicle*, Vol. 123, p. 2087.

¹⁸ *Proceedings of the Nineteenth Annual Convention, Investment Bankers Association of America, 1930*, Report of the Real Estate Securities Committee, p. 260.

1929 the total dropped to a half billion and in the following decade to a nominal figure.

Total real estate debt was estimated at \$42,700,000,000 in 1930, as shown in the accompanying table. A large part of the almost \$10,000,000,000 decrease in debt during the succeeding nine years was due to liquidation of the debt by foreclosure and the acquisition of the pledged property by the creditor.

REAL ESTATE DEBT IN THE UNITED STATES: 1930, 1939*
(Billions of Dollars)

	1930	1939	Decrease
Urban real estate mortgages . . .	33.2	25.9	7.3
Farm Mortgages	9.5	7.1	2.4
Totals	42.7	33.0	9.7

* Sternberg, J. Wesley, "Indebtedness in the United States, 1929-39," *Survey of Current Business*, June, 1940, p. 15

During the decade 1920-1929, excessive funds were invested in real estate mortgages and in real estate bonds. During the subsequent depression, accompanied as it was by drastic deflation in values, real estate mortgages, and particularly bond issues secured by real estate mortgages, suffered severely. In view of practices involved in setting up real estate mortgage bond issues, even by supposedly reputable houses, during this period, and the subsequent behavior of these issues, it is probable that such issues will be unpopular for some time.¹⁹ The figures show, however, that the building industry as a whole has been responsible for a capital demand exceeding that for any other field of private activity.

Capital requirements of agricultural industries. There is undoubtedly a fairly large annual demand for capital in agricultural industries, although it is somewhat difficult to measure this demand precisely. Data relative to the value of farm properties other than land are affected by changes in the general price level, while fluctuations in land values, which have recently been rather wide, really have no bearing on the supply and demand for capital.

Some light on the changes that took place in the aggregate

¹⁹ For further discussion, see Chapter 22.

values of different classes of farm property from 1910 to 1935 is given in the following table:

VALUE OF ALL FARM PROPERTY*

(Millions of Dollars)

	1935	1930	1925	1920	1910
Value of All Farm Property		57,246	57,018	77,924	40,991
Value of Land Alone		34,930	37,721	54,830	28,476
Buildings	32,859	12,950	11,747	11,486	6,325
Implements and Machinery	3,419	3,302	2,692	3,595	1,265
Live Stock		6,064	4,858	8,013	4,925
Value of Properties, Exclusive of Land		22,316	19,297	23,094	12,515

* *Statistical Abstract of the United States*, 1934, p. 540, 1939, p. 605.

It will be noted that the value of all farm property increased rapidly from 1910 to 1920, but showed a rather pronounced drop between 1920 and 1925 and again after 1930. A large part of the earlier increase was due to the war inflation, while the later declines were the result of the stoppage of war demands for farm products by belligerents after 1920 and the general business depression and deflation after 1930. The only items that failed to register a decline after 1920 were buildings and implements and machinery, which remained about the same from 1920 to 1925. Between 1925 and 1930, land values continued to decline, but the other items rose. Any conclusions one might draw from the preceding data regarding the capital requirements of agricultural industries would be subject to error. For example, between 1910 and 1920, the value of farm property, exclusive of land, increased by \$10,578,314,000. On this basis, it might be inferred that annual capital requirements of agricultural industries were slightly over one billion dollars during the decade of 1910 to 1920. Both this rise and the subsequent decline represent large movements in the general price level and afford little help in measuring the capital demands of the industry.

Somewhat more useful information regarding agricultural requirements is available from the records of farm mortgages. The total farm mortgage debt amounted to \$3,320,000,000 in 1910, \$7,858,000,000 in 1920, reached a peak of \$9,469,000,000 in 1928, after which it declined to \$7,645,000,000, in 1935.²⁰ The net

²⁰ *Statistical Abstract of the United States*, 1939, p. 625.

demand for additional borrowed funds represented by this increase in the long-term farm mortgage debt averaged close to a half billion dollars annually in the decade 1910-1920, the bulk probably falling in the war boom period of the later years. The gross debt gradually increased until 1928, since which time it has shown net declines, because repayments and foreclosures exceeded new loans. To these sums should be added the capital requirements that are covered by current borrowing through banks, as well as those requirements that are met through re-investment of income by the farmer himself. Because of the constant changing of ownership and the shifting of loans through refinancing, there is a much larger sum of loanable funds sought than is revealed by the increases in the gross debt figures. Mortgage debt is also incurred as a part of the purchase price of existing farms.

Attention should be called at this time to a possible change in the future status of our agricultural industry. The growing debts owed to this country by foreign countries, combined with the historic American high tariff policy, has greatly hampered the export of wheat and cotton as well as other agricultural products. Prior to World War I, foreign trade was in a state of equilibrium, although at the customs house this country showed a favorable balance of trade. Subsequent to the war, a favorable balance of trade was financed by loans to foreigners until 1930. Thereafter foreign trade and exchanges have been out of equilibrium. At the present time it is impossible to state what solution will be made of the debt and tariff problems. It is possible that this country will gradually cease to export cotton, wheat, and other agricultural products on the old scale. A gradual withdrawal of capital from certain important agricultural areas may follow unless a new demand for farm products can be created by inventing uses in the industrial field. World War II has made the short-run problem even more acute for some export products, such as cotton, but may help others, such as dairy products, through Government assistance of food exports to Britain.

Installment sales and their financing. With the rise of the automobile, installment selling grew up to finance its mass distribution. In recent years installment credit has spread to many consumers' goods lines, especially for those items possessing durability, such as refrigerators, furniture, radios, and washing machines. The comparative importance of such credit may be judged from the figures on the following page.

ANALYSIS OF RETAIL SALES IN THE UNITED STATES: 1935-1937*

(Millions of Dollars)

	1935		1936		1937	
	\$	%	\$	%	\$	%
Cash.....	22,371	68	25,348	67	26,522	66
Open book credit.....	7,041	21	8,117	21	8,758	22
Installment credit.....	3,599	11	4,475	12	4,650	12
Total.....	33,011	100	37,940	100	39,930	100

* Merriam, M. L., *Retail Credit Survey*. Domestic Commerce Series No. 103 (Washington, D. C.: Department of Commerce, 1938), p. 11.

It is probable that at any given time the total unpaid balance of installment credit will run between one third and a half of the total annual volume.

Operations of this kind either require that banks make heavier loans to the merchants who extend such credit or else discount the notes of customers themselves, or they require the aid of finance corporations, that is, corporations which specialize in discounting installment notes. While installment selling does create a demand for capital, and thus has an effect on interest rates, the resulting borrowing must be regarded as "consumption" borrowing in contrast with the financial operations of business concerns engaged in production.

Current capital requirements. Quite different from a social standpoint, however, is short-time borrowing for productive purposes by manufacturing and selling concerns. Our existing business structure requires the use of liquid capital on an extensive scale for the purpose of financing more or less current capital requirements. Thus the normal business concern, whether engaged in manufacturing or distribution, frequently borrows from commercial banks for the purpose of financing such current operations. In view of the fact that the total volume of such loans is always large, we may regard this kind of borrowing in practice as creating a permanent demand for funds. The total volume of loans and discounts for business purposes given by commercial banks was estimated at \$5,810,000,000 in 1939, while collateral loans for the purpose of carrying securities totalled \$1,623,000,000.²¹ Much of the capital employed in short-term borrowing, it is true, is created by our banking system. Yet, since we included such operations in our discussion of sources of capital, we must include the demands for such funds in our

²¹ *Annual Report of the Comptroller of Currency, 1939*, pp. 220-221.

discussion of the demand for capital. There is always present a large amount of open, or book, accounts, representing temporary financing. While the total of such open accounts and acceptances is undoubtedly very large, reliable estimates of the total are lacking, save in the field of retail credit reported above.

Summary. In the present chapter we have examined several of the more important sources from which a demand for loanable funds arises, as well as the extent of such demand. It would be idle to attempt a statistical measurement of this total demand by adding the totals of each group. Such a figure, in the first place, would involve a certain amount of duplication. Furthermore, it would not be helpful in determining the rate of interest. We have made our analysis of the supply of, and demand for, capital with two things in mind. In the first place, we have emphasized the motives which underlie saving and which underlie the employment of capital. Fundamental changes in these motives have an effect on interest rates. Thus, let the thrift movement gain substantial headway and interest rates will be lower, other things being equal, than they would have been had such a movement not developed. Conversely, let a new industry develop, with extensive opportunities for the employment of capital, or, given a situation which involves the carrying on of a devastating war, and interest rates will be higher than they otherwise would be, other things remaining the same.

Our second effort centered around an analysis of the amount of capital coming from certain sources and the amounts used in certain classes of undertakings. If we had accurate data as to the entire amount of capital saved during a given year and the amount utilized, the two figures must be equal. The supply of capital and the demand, at a given rate of interest, equate, of course. Thus, while it is interesting to know whence our capital comes, and to what major uses it is put, there are forces which lie back of saving and consumption that deserve important consideration when studying probable changes in the long-time rate of interest.

The student will further have been impressed with the extent to which our present economic structure is based on capitalistic methods of production, as well as the extent to which progressive development depends on the annual forthcoming of large amounts of fresh capital. It is the proper allocation of this capital to our various industries in a way that best serves the community that creates the central theme in our present study.

The Return on Invested Capital

Interest defined. In the field of economics the term "interest" is used to denote the price paid for the use of capital. Interest, therefore, is that share of the total income of society which is received by the capitalist. Just why there should be a return on capital is in the main a question for the economist, yet the answer may be suggested here at least in its broad outlines. The accumulation of capital implies the exchange of present goods for future goods. For example, the man who buys a \$1,000, 5 per cent bond in 1940, which matures in 1950, has given up a definite present sum, which he might have spent for goods. In return for this, he gets the promise of \$1,000 at a distant time, plus a certain additional amount, called interest, which he is to receive in the interim. We might simplify matters somewhat if we suggested that all the future sums which he expects to receive, amounting to \$1,500, have a present value of \$1,000. This situation, of course, implies that future goods are at a discount in terms of present goods, and this is exactly the attitude taken by most individuals. The majority of people would prefer \$1,000 today to a like sum a year from now; or, having \$1,000 today, they prefer to spend it rather than to defer the enjoyment therefrom for a period of years. The accumulation of capital, therefore, involves a distinct sacrifice on the part of most individuals who save, and is stimulated only by the expectation of receiving a larger sum in the future than that given up in the present.

But why, on the other hand, should people be willing to pay a premium for present goods? A partial answer to this question has already been suggested. Capitalistic methods of production

are more productive than direct methods that do not employ machinery. Those who have command over capital goods are able to make use of them in ways which yield a return in excess of the amounts borrowed. Hence, they are willing, if necessary, to pay back a greater sum in the future than that borrowed. It is the interplay of these two forces that gives rise to interest, and the rate which emerges may be regarded as a function of the demand for, and supply of, lendable funds.¹

Normal, or long-time, interest rates; the yield on British consols, 1849-1910. The pure rate of interest is the price paid for the use of capital with no premium for risk. In practice, the rate of interest quoted on a given loan is generally made up of pure interest and an additional amount, which, supposedly, measures the risk involved in that transaction—the possibility that some unforeseen circumstance may arise that will prevent the borrower from living up to his part of the contract; or the difference between the pure rate of interest and the rate quoted may cover the expenses involved in handling the loan. This is true where the loan is small in amount or where there is an expense of administration, as in the case of small real estate mortgages. In discussing the pure rate of interest, therefore, one must consider loans which, so far as possible, are devoid of investment risk and investment cost; otherwise the apparent return will include not only interest but other elements of income as well.² For many years prior to the World War I, British

¹ There are divergent views among economists regarding the nature of interest. The Austrian school led by Bohm-Bawerk stresses the advantages arising from indirect, or roundabout, methods of production over direct methods as giving rise to the demand for capital, and hence, as the essential factor in determining interest rates, although some attention, it is true, is given to the time preference which present goods enjoy over future goods. Irving Fisher, on the other hand, bases his theory of interest on the time preference of present over future goods, suggesting, however, that the advantages accruing from capitalistic methods of production must be considered as a factor in stimulating time preference. See Fisher, Irving, *The Rate of Interest* (New York: The Macmillan Co., 1907). Professor Frank Fetter went somewhat further than Professor Fisher in the development of the psychological theory of interest and virtually excluded the question of productivity (in the sense just discussed) from the problem. See Fetter, Frank, *Economic Principles* (New York: The Century Co., 1915), Vol. I, Chapter IV. Frank W. Taussig in his theory of interest stresses the factors governing both the supply of, and demand for, capital. See his *Principles of Economics* (New York: The Macmillan Co., 4th ed., 1939), Vol. II, Chapters XXXVIII to XL, inclusive.

² On page 55, we shall consider more fully the matter of differences in rates of return on different classes of investment in the same market to account for risk and other factors.

consols were considered to be as nearly riskless as any type of investment. It is true, of course, that obligations of the United States were so considered after 1880; but until that time it cannot be said that United States Government bonds were regarded with as much favor as those of the United Kingdom. Consequently, a study of the yield on British consols, for the period from 1849 to 1910, should give us a fairly definite idea of the range of pure interest rates during the latter half of the nineteenth century, and the first decade of the present century.

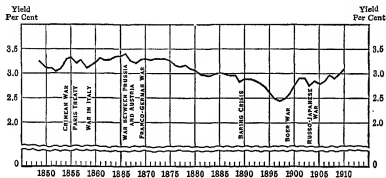


Figure 1—Yield on British "Consols": 1849-1910.

It is apparent from Figure 1 that the pure rate of interest varied, during the 62-year period studied, from 3.3 per cent to slightly under 2.5 per cent.³ From 1849 to 1882 the rate was maintained at over 3 per cent. From then until 1897 interest rates declined almost constantly and thereafter rose sharply until 1901. From that year until 1910 a further but more gradual rise is noted.

Accompanying these long-term fluctuations in interest rates are to be found fundamental changes in other aspects of our

³ Taken from data presented by Williams, T. D., "The Rate of Discount and the Price of British Consols," *Journal of the Royal Statistical Society*, Vol. 75, p. 399. For a chart of the price range of British 2½ per cent consolidated stock, 1903-1932, see *New York Stock Exchange Bulletin*, September, 1932. The annual range of French 3 per cent irredeemable rentes is charted in the same bulletin in October, 1932.

Corresponding yield data for corporate bonds prior to 1900 are not shown in Figure 3, but see Mitchell, W. C., "Rates of Interest and the Prices of Investment Securities," *Journal of Political Economy*, April, 1911, Vol. XIX, p. 269. See also Macauley, F. R., "The Construction of an Index Number of Bond Yields in the U. S., 1859 to 1926," *American Statistical Association Journal*, March, 1926, Vol. XXI, p. 27.

economic structure. Variations in the price level, changes in the world's supply of gold, changes in methods of conducting business, and, above all, a quickening in our entire economic life are among the phenomena that are familiar to all of us.

Interest rates in the United States. The course of United States government bonds from 1860 to 1899, as illustrated in Figure 2, is most interesting. Starting from a low point in 1861, when the average yield thereon was as high as 7.5 per cent, the

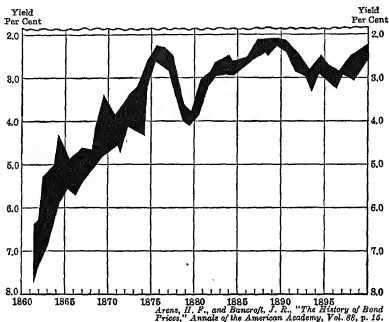


Figure 2—Course of Government Bonds in Post-Civil War Period
(on a yield basis).

price of these obligations advanced until, in 1889, they averaged to sell at a yield of but little more than 2 per cent.

These erratic fluctuations are explained, in part by the success of our civil government in the war, and in part by the introduction of a system of national banks, whereby government bonds were required as collateral to secure note issues.⁴ The rather sharp drop in price, and the corresponding advance in yield from 1877 to 1879, in contrast to the previous advance in price, was due in no small degree to the doubt raised during that period as

⁴ See Chapter 23.

to the ultimate resumption of specie payments and the discharge of our government debt in gold rather than in paper currency. As soon as that point was settled, the price of government bonds rose sharply and the yield on such obligations dropped to a point even below the yield on British consols at that time.

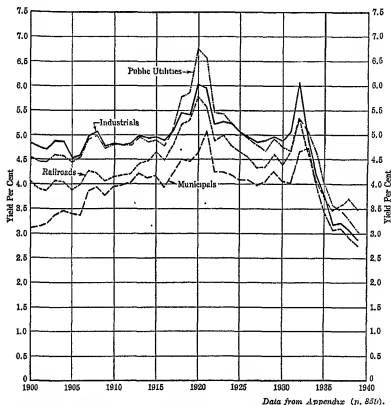


Figure 3—Yields on High-Grade Municipal, Railroad, Industrial, and Public Utility Bonds in the United States, 1900-1939.

The special market which United States obligations enjoyed as a result of the circulation privilege (security for national bank notes) destroys their value as a measure of true interest rates in this country from the time that they became almost wholly absorbed by national banks until they resumed a place in the regular investment market as a result of the issuance of loans during the first World War. The significance of later series is usually doubtful because they represent a fluctuating average of long and short maturities. In Figure 3, the yields of high-grade long-

term municipal, railroad, utility, and industrial bonds are shown. Good municipal issues were for many years regarded as practically riskless. The rapid growth of municipal debts during the 1920's, however, was responsible for many defaults. The result has been a much more critical and discriminating attitude towards municipal bonds, even of our larger cities. The number of municipalities in good standing in respect to their debt status was greatly diminished during the middle 1930's but has subsequently increased.

In Figure 3 a continuance of the movement already noted in the chart on page 55 is in evidence. The rise from 1900 to 1909 closely parallels that which occurred in the yield on British consols, although our curve for the United States starts from a slightly higher base. Following a temporary drop in 1909 the advance continued until 1914, which year marks the beginning of World War I. From then on, forces of an unusual nature were present, which caused rates to fluctuate over a much wider range than one would normally expect. The extraordinary advance in interest rates from 1916 on, to a point well above 5 per cent in 1920, can be accounted for largely by the extraordinary amounts of capital required for war purposes. Thereafter a decline almost as rapid is noted until, at the end of 1927, yields on all classes of bonds were back to prewar levels. The years 1928 and 1929, particularly the latter year, witnessed an increase in yields due to the competitive demand of the stock market. The troubles of the early 1930's were followed by a decline of yields to unprecedented lows for this country.

The effect of risk on investment yields. For the purpose of analyzing the course of interest rates during recent years, we sought data relating to the yield of riskless securities, or, perhaps better, securities offering the lowest possible degree of investment risk. In actual practice, however, the investor would have found, in any year during the period covered, a wide divergence in the return on different classes of investments. Evidence of the spread that exists between different securities in the same market appears in Figure 3, where the forty-year average return on four different classes of securities in the United States is presented. Municipals, as a class, sold on the lowest yield basis; the railroads, second lowest, until their recent change of position with the formerly third-place utilities; while industrial bonds generally sold to net the investor the highest return. The differences in yield between these four broad classes of investments

measure, to some extent, the market's estimate of the relative degrees of investment risk involved in each class. In other words, it is evident that investors, during most of the period studied, anticipated larger capital losses in industrial investments than in any other type, and, consequently, required a premium in the form of a higher interest return to compensate for this. If the estimates of risk were accurate, the amounts by which the gross return received on any class of bonds, such as the industrials, would exceed the return on municipal bonds are amounts just sufficient to cover the greater capital losses suffered in the former class.⁵ However, investment risk cannot be measured exactly; nor can even such substantial approximation be made as is possible in the fields of life and property insurance. In spite of this weakness, investors attach considerable importance to the probable risk as it is reflected in the yields of bonds whose price is set in a free and active market. That informed opinion changes in its estimate of risk is apparent from Figure 3, which shows a marked decrease in the spread among the four yield series in the decade 1900-1910. Special difficulties of the utilities in 1918-1920 and of the railroads since 1930, even though the bonds were selected as "high-grade," alter the previous yield relationships and show how the risk estimates of the market are subjective judgments that can change not only with respect to individual securities, but even to whole classes of securities.

Legality and investment yields. As a matter of fact there were other factors than those related to risk that may have caused a spread in the return on these four classes of investment during the period covered; nevertheless, one is correct in assuming that the order of desirability between the groups did not differ from that already indicated. One of the most important of these out-

⁵It is a pertinent question whether the market estimate of risk measures exactly the mathematical risk involved in different groups of investments. That is, given a large sum, would it be profitable for the investor to select securities on which the market places a high risk, and set up out of his gross return a fund to amortize losses? If the investor were able to select his issues with such success that his actual losses were less than his anticipated losses, he would then make a return in excess of a true interest return; that is, the premium for risk would more than measure the risk present. For a further discussion of this subject, as well as a statistical analysis of certain trial investments, see Dewing, Arthur Stone, "Elements of Investment Income," *Harvard Business Review*, Vol. I, No. 3, p. 300 ff. Professor Dewing suggests the following notation in summarizing: "If 'g' represents the gross return on any investment, 'p' the pure rate of interest then prevailing, 'r' the compensation for risk, and 'e' the profit or loss due to individual business judgment, then $g = p + r \pm e$."

side factors pertains to the legality of various types of securities as proper investments for trust funds. Each state has its own peculiar laws defining the kinds of investments that trust funds, life insurance companies, and savings banks may purchase. For many years practically every state has had legalized investments in a rather wide list of municipal and railroad bonds; but, until recently, public utility bonds have not been so favored. This attitude has been changed substantially.⁹ The comparative record of high-grade railroad and utility bonds, as illustrated in Figure 3, tells something about the relative impairment of the position of the railroads and the enhanced investment prestige for the bonds that have been issued by operating utility companies.

Effect of marketability on yields; bonds of varying maturity dates. Not only are there differences in yield between groups of securities at any given time, but there are wide variations among the yields on individual securities within these groups, which may be accounted for only in part by the credit standing of the obligor named on the bond. Consider for a moment the question of marketability. It is a well-known fact that two bonds whose risk elements are exactly equal may vary in yield, where one is more readily marketable than the other.

The table on page 61 will serve to illustrate the variations in yield within certain groups of securities. The average yields on listed and unlisted bonds, as well as on bonds which differ in respect to credit status, are shown for each of the three groups: railroads, public utilities, and industrials.

In this table it is interesting to note the uniform rise in yields as one passes from the higher to the lower grades of issues. There is also a uniform difference in the yield of listed as contrasted with unlisted issues. The listing of a security does not *per se* eliminate risk, but rather indicates a more ready market. The spread between listed and unlisted issues may, therefore, be taken to indicate the premium put on marketability. We again observe the order of preference which these three groups enjoyed at that time in the minds of investors: railroads, public utilities, and industrials.

Furthermore, the length of time a bond of good quality has to run to maturity will also affect its yield. During periods of high rates on short-time paper, short-time bonds will sell at prices which make their yield approximately the same as that found on

⁹ For the current position of utility bonds as "legal" investments, see the current issue of the *State and Municipal Compendium*.

TABLE SHOWING COMPOSITE YIELDS ON LISTED AND UNLISTED BONDS OF DIFFERENT GRADES: DECEMBER, 1930*

Composite Rating	RAILROADS Average Yields		PUBLIC UTILITIES Average Yields		INDUSTRIALS Average Yields	
	Listed	Unlisted	Listed	Unlisted	Listed	Unlisted
Aaa....	4.45	4.61	4.55	4.65	4.74	4.88
Aaa.....	4.57	4.89	4.61	4.71	4.79	4.90
Aaa.....	4.58	4.98	4.74	4.87	4.87	5.06
Aaa.....	4.99	5.06	4.92	4.94	5.02	5.27
Aa.....	4.93	4.97	4.76	5.02	4.96	4.98
Aa.....	5.01	5.09	4.69	4.92	5.22	5.45
Aa.....	5.08	5.21	4.93	5.06	5.17	5.59
Aa.....	5.54	5.72	5.19	5.32	5.61	5.71
A.....	5.75	6.44	5.24	5.42	5.49	6.02
A.....	5.43	6.62	5.52	5.74	5.88	6.32
A.....	5.89	6.47	6.00	5.92	6.16	6.78
A.....	6.10	6.69	6.34	6.14	6.63	6.89
Baa.....	6.38	6.85	6.23	6.30	6.89	7.21
Baa.....	6.42	7.08	6.64	6.77	7.17	7.37
Baa.....	6.44	7.22	6.95	7.26	7.86	7.78
Baa.....	6.96	7.56	7.45	7.74	8.08	8.29
Ba.....	7.21	7.14	7.81	8.23	7.77	8.60
Ba.....	7.29	7.03	8.03	8.34	8.38	8.77
Ba.....	7.33	7.45	8.17	8.47	8.87	9.52
Ba.....	7.88	8.02	8.87	9.18	9.23	10.14

* Adapted from *Annual Quotation Booklet*, published by Fynchon & Co., New York. Composite ratings obtained by averaging those compiled by Moody's Investors Service, Standard Statistics Co., Poor's Publishing Co., and Fitch Publishing Co.

short-time commercial loans. Long-term bonds, on the other hand, will sell on a somewhat lower yield basis, or at relatively higher prices, for the reason that the investor seeks such issues for the purpose of extending this favorable return for as long a time as possible. Conversely, when interest rates are especially low, long-term bonds sell at prices which yield somewhat more than short-term bonds. At such periods, short-maturity bonds are in greater demand, for investors are reluctant to tie funds up for long periods at unfavorable interest rates. This stimulates the demand for short-time issues and depresses the demand for long-term issues.

Geographical variation in interest rates. Analogous in some respects to the variations in yield found among different securities in the same market are the variations found in the rates of interest current in different countries. If there were an absolutely free flow of capital from one country to another, and if political stability were the same throughout the world, the only differences in the interest yield on investments would be those arising from the special characteristics of the securities themselves, such as the degree of risk present, the maturity of the

issue, its marketability, and the like. As a matter of fact, there is not a free flow of capital from one country to another. Trade barriers and nationalistic policies of self-sufficiency have interfered. Moreover, the investment of funds abroad, irrespective of any other risks, involves exchange fluctuations. There is also the difficulty of supervision, because of the remoteness of the enterprise, as well as the whole question of political stability in different countries, which makes for a natural reluctance on the part of investors to commit funds to distant parts of the world where events cannot be easily and conveniently followed. For this reason, each financial market develops an interest rate of its own, within certain limits, depending on the local supply of, and the demand for, capital. Each country has its own interest rate, which usually varies from that found in other markets.

It is, of course, entirely logical that in normal peace times interest rates should be lower in old and established countries than in new and growing ones. After capital accumulation has been going on for some time in a country, the domestic requirements become fairly well supplied, and the marginal productivity of capital is lowered—that is, capital must be employed in less and less profitable ways. In new and undeveloped countries, on the other hand, the more productive uses of capital are still open and many opportunities are presented for high returns. For this reason, capital flows from older to newer communities; from communities where the marginal productivity of capital is low to localities where it is high. However, it is true that the risks of investment often are higher in new or undeveloped countries, because of a less stable government, inadequate legal systems, or the newness of industrial undertakings, the newness accounting for a higher return in the last class mentioned.

For many years prior to 1914, Great Britain supplied capital in large quantities to countries all over the world. The development of American railways before 1900 was materially helped by British capital, which was also invested on an extensive scale in South America, Canada, China, India, and other parts of the Far East. The promise of higher rates abroad than at home and the presence of an ever-growing fund of capital were the main factors responsible for this movement.

A study of the return on various groups of investments floated in the British markets from 1888 to 1911 will serve to illustrate the point just made in respect to the higher return customarily enjoyed on investment in less-developed countries.

PROMISED RETURN ON HOME, COLONIAL, AND
FOREIGN INVESTMENTS FLOATED IN
BRITISH MARKETS: 1888-1911*

Year	Home Per Cent	Colonial Per Cent	Foreign Per Cent
1888	4.35	3.43	5.61
1893	2.92	4.09	5.53
1898	2.81	3.07	3.97
1899	3.41	3.27	5.11
1900	3.35	3.20	4.05
1901	3.00	3.40	5.34
1902	3.12	3.21	4.94
1903	3.44	3.21	5.77
1904	3.46	3.78	5.83
1905	3.39	3.78	4.99
1906	3.37	3.85	5.14
1907	3.61	3.99	4.90
1908	4.00	4.04	4.95
1909	3.60	3.96	4.88
1910	3.72	4.19	4.85
1911	4.61†	4.03	4.85

* See Leffeldt, R. A., "The Rate of Interest on British and Foreign Investments," *Journal of the Royal Statistical Society*, Vol. 70, p. 106 ff.

† Three issues only.

Thus, with but five exceptions, the average promised yield on new *domestic* securities floated in British markets was lower than that on securities issued by colonial enterprises, and, without exception, the average return on domestic flotations was substantially below that promised on foreign securities during the period covered. Furthermore, the return on colonial enterprises was below that promised on foreign securities.

After World War I a radical change took place in the position of the United States. A vast accumulation of capital piled up in this country, which sought employment in foreign fields, partly in the rebuilding and financing of nations devastated during the war, and partly in financing less developed nations. The same phenomenon became noticeable here that had previously existed in the British situation. Interest rates were low at home, as contrasted with the promised return on investment in German, Japanese, Italian, and South American enterprises. The failure of our domestic capital needs to grow as rapidly as capital accumulation and the promise of a substantially higher return on foreign investments led to a large expansion in the latter field.

Because of the numerous defaults in the 1930's, and our losses on foreign investments, it is unlikely that private investment will be interested in this field for some time, save possibly in Canada. Such loans as are made for reasons of national policy

are likely to come from the Federal treasury. Political conditions after the conclusion of World War II and the amount of financial strain which that effort places upon our domestic financial markets will determine our attitude towards foreign investment.

Interest versus profits. In economic theory the return on invested capital is called "interest," and up to this point in our discussion we have accepted this meaning of the term. Theoretically, capital is entitled to a return which is devoid of all risks and which is in no way associated with the management of enterprises, for the return allocated to the *entrepreneur* or business manager is known in economic theory as "profits." We should have completely overlooked the practical aspects of the situation, however, had we concluded our discussion at this point. We are, in fact, compelled to recognize the practical, as well as the theoretical, viewpoint of the investor. Credit instruments, such as bonds and notes, it is true, do bear fixed rates of interest; and, in respect to the return on capital invested in this type of security, we are correct in confining our discussion to a study of current interest rates. But this type of security represents only a small part of the invested capital of the country. One must consider also the large amount of preferred stocks outstanding, the return on which, although not contractual, is frequently regarded as fixed in very much the same way that interest is. In theory, the return on a preferred stock is partly interest and partly profit, since all stocks, both preferred and common, represent ownership in the corporation; yet the average investor probably regards dividends received on preferred stocks just as much a return on capital as he does the interest which he receives on bonds.

Common stocks, on the other hand, present an even more complicated problem. For not only is a part of the return received on this type of security more purely profit as contrasted with interest, but the forms in which the return may come are varied. In fact, the return on common stock investments may be received in any or all of the following ways: dividends, subscription rights, surplus accumulation, or appreciation in market value. Theoretically, therefore, as well as practically, the return on such securities appears as a participation in profits, in that it is a residual, not a fixed, claim. For the sake of clarity, the differences in the terminology of business practice, or accounting, and of economic theory must be kept in mind. In business practice, "interest" is the contractual rate paid to creditors, such as bond-

holders and mortgagees, and dividends are paid to stockholders, both common and preferred, out of the residual earnings, which are called the net profits. In economic theory, the term "interest" refers to that imaginary fraction of the return to the supplier of capital, whether his legal position is that of creditor or owner, for the use of capital if such use entails no risk. Any surplus over this imaginary amount represents economic profits, which are in the nature of a premium for risk of capital loss. Presumably this premium demanded by the investor will be but a small part of the promised return in the case of well-protected bonds, somewhat more for second-grade bonds and preferred stocks, and relatively large for common stocks.

Return on invested capital in selected groups of enterprises: industrial earnings, 1910-1913. As one would expect, our task from now on will be somewhat more complicated than when we were discussing the pure rate of interest. At that time we were dealing with a definite phenomenon, which has long been studied and on which there is a mass of related and consistent data. In considering the return on various classes of stocks, on the ownership equity in businesses, or on the total capital investment in enterprises where pure interest and a return for risk are both present in varying degree, one must be content with less satisfactory evidence.

We shall first analyze the return on broad classes of invested capital—that is, the return on total capital invested in certain selected types of industry. Thereafter we shall take up in more detail the return on selected classes of stocks, such as preferred and common.

In a study made by the authors of the rate of earnings on capital invested in industrial enterprises for the years 1910, 1911, 1912, and 1913, it was found that twenty-five companies averaged between 5.7 and 7.2 per cent on their total capital invested.⁷ This was substantially lower than one would normally expect, in view of the risks inherent in industrial enterprises. We are, however, dealing with averages which include high- and low-

⁷The average return for specific years was as follows:

<i>Year</i>	<i>Average Per Cent Earned by 25 Cos.</i>
1910.....	5.7
1911.....	5.7
1912.....	7.0
1913.....	7.2

earning concerns.* One of the characteristics found among industrial concerns is a wide variation in the ratio of earnings to investment. Some companies consistently earn very high rates. The Ford Motor Company, for example, was able consistently to earn throughout this period well over 100 per cent on its book investment. Other companies during the same time were unable to earn a rate equal to that promised on high-grade bonds. It is the *expectation* of a high return, not the existence of a given *average* return, that attracts capital into industrial investment.

Earnings of miscellaneous companies, 1917. The average rate of return shown for industrials in the preceding study covering the 1910-1913 period was somewhat lower than that shown for 31,045 selected corporations studied in another connection for the year 1917. One would expect the average return on capital invested in industrial enterprises to be high in 1917, however, on account of the large amount of war business handled during that year and the rapidity with which prices advanced in 1916 and 1917. The composite result for these 31,045 corporations, based on a report by the Treasury Department to the Senate, showed a total net income before taxes of \$4,760,995,000 on an invested capital of \$22,000,000,000, the per cent return here being 21.7.⁹

*Another study for the years 1912 and 1913, which, unfortunately for our purpose, mixed industrial and utility data, showed earnings of \$55,613,659, or a return of 13.67 per cent earned upon an invested capital of \$406,829,348. The data, drawn from an accountant's file, show that the concerns were probably more prosperous than average. Of 158 reports, 117 showed earnings of eight per cent or more, in spite of poor business conditions. See Sterrett, J. E., "The Comparative Yield on Trade and Public Service Investment" *American Economic Review*, Vol. VI, pp. 1-8.

⁹See Friday, David, *Profits, Wages and Prices* (New York: Harcourt, Brace & Co., 1921), pp. 35-37.

<i>Income Range Percentage</i>	<i>Net Income before Taxes (000 omitted)</i>	<i>Invested Capital (000 omitted)</i>	<i>Percentage Net Income before Taxes to In- vested Capital</i>
Under 10	\$477,013	\$6,250,000	7.6
10-15	389,211	3,000,000	13.0
15-20	578,015	3,400,000	17.0
20-25	566,799	2,600,000	21.8
25-30	324,599	1,200,000	27.0
30-35	301,186	1,000,000	30.1
35-40	389,700	1,100,000	35.4
40-50	1,189,719	2,700,000	44.1
50-75	293,185	500,000	58.6
75-100	133,416	150,000	89.0
Over 100	118,152	100,000	118.1
Total	\$4,760,995	\$22,000,000	21.7

The average for all corporations, however, would undoubtedly be lower than this figure, for, according to Treasury reports, 119,000 corporations showed no net income at all in 1917. This latter figure is almost four times as large as the number of the corporations which show an income, and this situation existed in spite of conditions which created unreal, inflationary profits.

These figures are given for what they are worth, although it is hard to see how they can be used as a basis for broad generalizations. As already indicated, they are based on operations during a war year and comprise only corporations which actually showed a profit.¹⁰ Furthermore, they comprise a heterogeneous group of companies in different lines of business.

This last objection, however, has been overcome, to some extent, in that 30,892 of the companies listed have been grouped into 5 selected classes and the average rate earned by each class on capital invested shown separately. The results of this study are shown in the following table:

* PERCENTAGE OF EARNINGS TO CAPITAL
OF 30,892 CORPORATIONS: 1917

<i>Percentage Net Income to Capital</i>	<i>Financial Corpora- tions</i>	<i>Railroads and Public Utilities</i>	<i>Transpor- tation by Water</i>	<i>Agricul- tural</i>	<i>Manufactur- ing and Mining</i>
Under 10	28.3%	78.2%	2.8%	14.3%	2.4%
10-20	68.9	20.6	1.9	30.2	19.6
20-30	10.8	1.1	7.2	20.0	20.7
Over 30	2.0	0.1	88.1	35.5	57.3

From these data for the year 1917 it appears that the lowest rate of return was found in the railroad and public utility group. A partial explanation of this situation undoubtedly lies in the fact that both these industries are regulated as to the rates that

¹⁰ The following table, taken from Mudgett, Bruce D., "The Course of Profits During the War," *Annals of the American Academy of Political and Social Science*, May, 1920, p. 148 ff., will serve to illustrate the extent to which industrial profits advanced during the war period:

RATE EARNED BY SELECTED INDUSTRIALS ON INVESTED
CAPITAL DURING PREWAR AND WAR PERIODS

	<i>U. S. Steel</i>	<i>Gloss Sheff. Steel</i>	<i>Lacka- wanna Steel</i>	<i>Cru- cible Steel</i>	<i>Beth- lehem Steel</i>	<i>Rep. Iron and Steel</i>	<i>Ry. Steel Spring</i>	<i>Penn Steel Car</i>	<i>Am. Loc.</i>	<i>N. Y. Air Brake</i>	<i>West. Air Brake</i>
Prewar Period (1910-1913)	6.8	3.0	4.3	5.6	7.1	4.3	4.6	4.4	5.7	5.4	17.3
Total War Period . . .	12.2	6.5	14.9	15.7	32.5	12.8	8.6	6.0	8.8	23.4	24.4
U. S. Neutral Period . . .	11.3	4.8	10.2	14.9	41.7	10.7	5.8	4.9	8.9	31.3	21.2
U. S. Belliger- ent Period.	13.5	9.1	22.0	18.1	18.7	16.0	12.9	8.6	8.5	11.6	34.1

they may charge and the conditions under which they may render service. This situation applied not only to public utilities at this time, but also to railroads, particularly those doing an interstate business and coming under the control of the Interstate Commerce Commission. A study of railroad rates from 1910 to 1920 will show that they failed to advance anywhere nearly so fast as prices. With rapidly increasing operating expenses, therefore, one would expect a decreasing return in this industry during this period. In public utility enterprises, an 8 per cent rate was often allowed on the fair value of property used for public service, although the rates allowed today are much lower than this. Even where a conscientious effort is made to allow rates which will yield the public service corporation a fair return, such corporations are at a distinct disadvantage during periods of rising prices. There is an inevitable delay in the legal processes which must be experienced in order to obtain sanction for new rates, and this prevents the utility from advancing its rates as fast as the prices of materials and labor increase. Particularly during a period of advancing prices, therefore, would one expect the rate of profit of such corporations to be lower than that found in many industrials.

Recent tendencies in industrial earnings. In normal times one might also argue that the rate of return on capital invested in railroad and public utility enterprises should be lower than that found among industrials, on account of the low risk in the former type of enterprise as compared with the latter. To a certain extent this is true. Some industrial concerns earn on an average very high rates on their invested capital.

A very comprehensive study of industrial profits is the result of an analysis of corporation Federal income tax returns by Professor Nerlove.¹¹ Unlike some compilations, his results include unprofitable as well as profitable corporations. The rates of return shown in the table are based upon net profits after interest but *before Federal income taxes*, and invested capital is taken as the book net worth, which includes preferred stock, common stock, and surplus or deficit. Because the amount of borrowed capital through bond issues is not of major importance for industrial corporations, it seems probable that the return on total invested capital would give a set of figures very similar to those shown on the next page.

¹¹ Nerlove, S. H., *A Decade of Corporate Incomes, 1920 to 1929* (Chicago: University of Chicago Press, 1932), pp. 40, 42.

RATE OF RETURN EARNED ON OWNED INVESTED CAPITAL
OF INDUSTRIAL CORPORATIONS: 1920-1929

(By Per Cents)

Year	All Industrials	Mining and Quarrying	Manu- facturing	Con- struction	Trade
1920.....	7.0	8.1	9.5	10.5	7.3
1921.....	1.1	-4.4	-0.2	2.3	-0.6
1922.....	6.0	0.3	7.5	5.9	8.6
1923.....	7.5	-0.6	9.9	11.7	11.0
1924.....	6.4	-0.9	7.5	11.3	9.1
1925.....	8.3	4.1	9.6	13.2	10.3
1926.....	7.9	4.6	9.2	12.8	8.7
1927.....	6.8	0.7	7.6	12.4	8.0
1928.....	7.9	2.3	9.2	11.2	9.1
1929.....	7.7	4.1	9.7	10.9	6.7
Averages...	6.6	1.8	8.0	10.2	7.8

In view of the known risks in the mining field, the return shown in the table suggests that the field has more allurements than profits for the capitalist. On the other hand, a substantial part of book investment in this field may be represented by the mines, exclusive of development and equipment, at arbitrary valuations set by the corporate promoters. However such values are arrived at, they represent a capitalization of hopes rather than tangible outlay in productive goods requiring society's savings, and consequently, the rate of return has a somewhat different meaning for this special type of business.

Among the other three groups—trade, manufacturing, and construction—the risks and uncertainty would appear to be in the same order as the rates of return. During the years immediately following 1929, profits were reduced least for the trade group and most for construction, at least for major corporations.

INDUSTRIAL PROFITS AS A RETURN UPON NET WORTH

1929.....	13.5%	1935.....	6.6
1930.....	6.7	1936.....	10.2
1931.....	2.5	1937.....	10.5
1932.....	4 def.	1938.....	4.8
1933.....	2.7	1939.....	8.4
1934.....	4.3		

The course of industrial profits in these later years may be judged from the compilations of the National City Bank of New York (published in recent years in the April number of their monthly bulletin). These figures for major corporations indicate a trend, although for a smaller section of the industrial community than is shown in the first table above, total "invested

capital" for this group amounting to but \$29,231,000,000 as of January 1, 1931, as compared with \$64,220,000,000 in the Nerlove study in 1929. The other major difference between the two sets of figures is that the National City Bank figures are net profits *after* Federal income taxes, rather than before. The higher rate of return shown for 1929 by these figures, 13.5 per cent as compared with 7.7 per cent (shown in the Nerlove study), may be due to the ability of large corporations to earn a higher return, although other possible factors might be more conservative accounting for investment by the larger corporations or a more generous distribution to the owners of smaller concerns in the form of salaries in order to minimize income taxes.

Because these major corporations show the same tendencies as business generally, it may be concluded that the return upon net worth for industrial corporations was lower and more fluctuating during the 1930's than the 1920's. With war disturbances abroad, instability is likely to be continuing. The influence of national defense, and even of inflation, may increase earnings, but there will be a potent restraint in rising taxes upon income and possibly in price-fixing.

Earning power of capital of railroads and utilities. Whatever may be said of the average earning power of industrial corporations, it is true that a much more constant rate of earnings is maintained by public utilities. In other words, there is a far greater stability of return among such corporations than among industrials. This stability is due in part to the control exercised over rates and charges as already suggested, and in part to the nature of such enterprises. Competition, ever present in the industrial field, is replaced by regulation in the public utility field. There is little to fear from style changes, or changes in popular tastes and fashions. The problem of obsolescence is minimized, and the services furnished by utilities are of a necessary character and are purchased in much the same quantity whether times are good or bad. Thus, even though government control and regulation of rates may for a time operate to the disadvantage of utilities, on the whole, such regulation results in much greater stability.

Complete data are available to show the average return on capital invested in railroad enterprises of this country for many years. The following table, supplementing the 1917 figures already shown, records the per cent earned on the aggregate value of railroad property for recent years;

EARNINGS ON INVESTMENT IN RAILROAD PROPERTY IN THE UNITED STATES: 1916-1938†

Year	Investment* (000 omitted)	Net Railway Operating Income (000 omitted)	Return on Investment (by per cent)
1916.....	\$17,842,777	\$1,058,506	5.93
1918.....	18,984,756	646,223	3.40
1920.....	19,849,320	12,101	.06
1922.....	20,580,168	769,411	3.74
1924.....	22,182,267	984,463	4.44
1926.....	23,880,740	1,229,020	5.15
1928.....	24,875,984	1,182,467	4.75
1930.....	26,051,000	874,154	3.36
1931.....	26,094,899	528,204	2.02
1932.....	26,086,991	325,332	1.25
1933.....	25,901,962	477,326	1.84
1934.....	25,681,608	465,896	1.81
1935.....	25,500,465	505,415	1.98
1936.....	25,432,388	675,600	2.66
1937.....	25,636,082	597,841	2.33
1938.....	25,595,739	376,865	1.47

† Compiled from Interstate Commerce Commission, *Statistics of Railroads in the United States* (annual).

* Prior to 1926, figures include investment of leased lines and exclude investment of proprietary companies which do not render annual reports. In this column, no allowance is made for cash and material and supplies, and no deduction is made for depreciation.

Fluctuations were marked by depression in the period 1918-1921 and again in the 1930's, but were relatively less than those shown for industrial corporations as a group. The combination of influences in the form of Federal legislation and regulation and external economic forces are more appropriately discussed at a later point.¹² Although the Transportation Act of 1920 held out the hope of an average return falling between 5.5 and 6 per cent, the actual earnings ran between 4 and 5 per cent of book investment during the prosperous 1920's and fell to the level of 2 per cent in the late 1930's.

Public utility earnings. The situation at present in respect to public utilities is akin to that found in the railroad industry in certain particulars, but it differs in other particulars. It has already been suggested that public utilities are subject to commission regulation in the matter of rates and service. In fact, nearly every state in the Union now has some form of utilities commission. It is true, however, that the attitude of the courts and commissions in respect to rates has been somewhat more liberal than in the case of our steam roads. Whereas in recent years the railroads have been unable to earn anything like a fair

¹² See Chapter 18.

return, the utilities, which were regulated to earn between 7 and 8 per cent in the 1920's, have been allowed to earn about 6 per cent.¹³

In practice, also, the return on capital invested in so-called public utility enterprises exceeds the return earned on capital invested in railroad corporations. The return earned in some recent years on the total aggregate value of the property account of certain electric and gas utilities located in the largest cities is shown in the following table:

PER CENT OF OPERATING EARNINGS TO PLANT AND EQUIPMENT OF LEADING METROPOLITAN UTILITIES*

1939	6.4	1933	6.2
1938	6.1	1932	6.5
1937	6.2	1931	7.1
1936	6.7	1930	7.5
1935	6.5	1925	7.8
1934	5.9		

* Compiled by authors.

The table indicates that in recent years the average percentage earned runs slightly in excess of 6 per cent.¹⁴ This group of companies had total property amounting to \$4,299,000,000 in 1937, and they are probably representative of the industry. In 1937, the combined gross fixed property of commercial electric companies in the United States was estimated at \$14,048,000,000.

In the telephone industry, the return earned by the American Telephone and Telegraph Company, the so-called Bell system, is shown in the table below.¹⁵ This system operates about seven

PER CENT OF NET OPERATING INCOME TO NET PLANT INVESTMENT OF BELL SYSTEM: 1929-1939*

1939	6.6	1933	5.1
1938	5.9	1932	5.5
1937	6.5	1931	6.8
1936	7.0	1930	6.9
1935	5.8	1929	8.0
1934	5.4		

* Compiled by authors.

¹³ For a list of decisions bearing on the question of a fair return for utilities, see Chapter 15.

¹⁴ The net plant used in these calculations was somewhat less than the combined capital structure (bonds plus net worth) for strictly operating companies, and, consequently, the return on the latter figure would be slightly lower.

¹⁵ Because of the more substantial depreciation reserves carried by the American Telephone and Telegraph Company, the net plant—that is, less depreciation reserve—seemed the more appropriate basis for showing return than the gross plant. The percentages figured upon gross plant were: 1939, 4.7; 1938, 5.9; 1937, 6.5; 1936, 7.0; 1935, 4.4; 1933, 4.0; and 1929, 6.6.

eighths of the present total plant investment in the United States.

The net capitalization of electric railways in 1929 amounted to \$5,352,974,617, whereas gross earnings available for charges were \$139,871,350. The approximate ratio of earnings to capitalization was thus 2.6 per cent.

Recent earnings of national banks. Recent data showing the return on capital invested in national banks are available from the reports of the Comptroller of the Currency. For the five years 1925-1929, inclusive, the average ratio of net earnings to the total book investment of the stockholders (the sum of capital stock, surplus, and undivided profits) for all national banks was 7.89 per cent, with but little variation from year to year. The record since, as shown in the following table, has been more erratic, although showing substantial recovery in the later years:

STOCKHOLDERS' INVESTMENT AND NET EARNINGS OF
NATIONAL BANKS: 1925-1939*

<i>Years Ended June 30</i>	<i>Capital Funds† (000 omitted)</i>	<i>Net Earnings (000 omitted)</i>	<i>Per Cent Earned on Net Worth</i>
1939.....	\$3,331,650	\$224,954	6.75
1938.....	3,246,886	208,423	6.42
1937....	3,186,577	286,561	8.99
1936.....	3,123,493	241,654	7.74
1935.....	3,048,535	71,372	2.34
1934.....	2,920,783	303,546 (def.)	10.39
1933.....	3,156,232	218,384 (def.)	6.92
1932....	3,564,857	139,780 (def.)	3.92
1931.....	3,625,131	52,541	1.45
1930.....	3,881,186	246,261	6.35
1925-29 (average)...	3,292,778	259,477	7.89

* Compiled from Annual Reports of Comptroller of Currency.

† Capital Stock, Surplus Undivided Profits, and after 1931, Reserve for Contingencies and Preferred Stock Retirement Fund.

The average capital invested in banking enterprises has, during recent years, shown an earning capacity substantially in excess of that of capital employed in transportation, and about equal to that employed in public utility enterprises. Banks, unlike the utilities, are competitive and are regulated primarily to insure their solvency. While risk for bank stock investments has been considerable, reaching a climax in 1933, there is hope that failures will be greatly lessened in the future.

Our discussion might be continued to include the return on other broad classes of capital; but enough has been said to enable us at least to make certain generalizations. In the industrial field, which embraces manufacturing, mining, and merchandis-

ing concerns, we find the highest returns and the widest variations between enterprises. The average, or normal, return, if such may be said to exist, apparently does not exceed that found in the public utility group. The attractions held out by industrial investments arise from the possibility of high profits where the enterprise is successful, and from a minimum of public regulation. The possibility of a high return apparently offsets the inherent risks of this class of investment. Public utility enterprises and railroads are regulated in respect to rates and in the past were felt to embody less investment risk than industrial enterprises. In recent years experience has dashed that belief as far as railroads are concerned. Where they earned between 4 and 5 per cent in the prosperous 1920's, their earnings in the late 1930's were so low as only about to equal interest charges. Utilities enjoyed the greatest stability but average return has declined in the period reviewed. Although commercial banks suffered extremely heavy losses, the surviving institutions have shown substantial recovery in recent years. As in the case of industrials, financial institutions tend to show more variability in the rate earned among different companies and in different periods of the business cycle.

The return on stocks. There remains one more aspect of the problem to be considered. It will be recalled that we started our analysis of the return on invested capital by considering interest rates. Thereafter we considered the return on total invested capital in certain enterprises. The two concepts are the same in some respects, but different in others. The essential difference lies in the distinction between interest and profits. Interest is a return on capital pure and simple, while the aggregate return which we subsequently studied embodies interest and profits. Or, looked at in another way, any typical enterprise will distribute the total return earned on its invested capital partly in the form of interest to those contributing capital to the enterprise and partly as profits to those who assume the risks of the business by making capital contributions as owners and not as creditors. We come now to the last form of distribution; that is, the return to the owners of the business—the stockholders. In other words, what return may the investor expect as a stockholder in an enterprise, or as an owner, in contrast to the return he might expect if he were a creditor, or a bondholder? This question will be taken up first in respect to preferred stocks and later in respect to common stocks.

Yield on preferred stocks. Although differing fundamentally from the bondholder in theory, the preferred stockholder in practice occupies a position almost identical with that of the bondholder. The return which he receives is, it is true, a participation in profits and not an assured or promised return. Yet his return, except in the case of special classes of preferred stock, is limited to the rate of dividend specified in the stock contract. The only assurance that he will receive any return at all comes from the financial condition of the business, there being no promise on the part of the corporation to pay the dividend specified. Yet, the practical aspects of the situation so far outweigh the theoretical that preferred stocks sell strictly on a yield basis except when dividends are in arrears, or where the financial condition of the company is such as to jeopardize the continuance of the dividend. That is, as a class, the same factors that govern the return on bonds govern the return on high-grade preferred stocks.

We may, therefore, conclude our discussion of preferred stocks with the following observations:

1. If a preferred stock could be found which was absolutely devoid of risk, it would tend to sell to yield the same return to the investor at any given time as a long-term, high-grade bond. The characteristics which would differentiate two such issues otherwise statistically alike would be:

(a) *Fixed versus contingent charge.* The fact that bond interest is a fixed obligation, the failure to pay which will cause receivership, means that it is more certain of payment in difficult times. A preferred dividend may be passed either because of the absence of surplus from the balance sheet or because of a desire to conserve working capital. Neither of these reasons would be sufficient to prevent the payment of interest. In good times, these two factors appear unimportant, but when the outlook for a corporation is uncertain, they are likely to make for a marked difference in the estimate of investment risk as it is reflected in market price.

(b) *Maturity.* Preferred stock has no maturity date, a fact which might permit somewhat greater price fluctuations. The difference is probably minor, at least in the case of long-term bonds.

(c) *Tax status.* Formerly dividends were not subject to

the Federal normal income tax, so that preferred stock had a slight advantage over a similar bond. Sometimes the status of preferred stocks and bonds differs with respect to state and local taxation.

(d) *Legality for fiduciary investment.* The fact that preferred stocks are not so generally permissible as are bonds for life insurance companies, savings banks, and trustees would be another minor influence.

2. In practice, however, preferred stocks generally have somewhat higher investment risk than bonds, and hence sell at yields somewhat in excess of those shown for bonds. Usually, high-grade preferred stocks sell to yield from $\frac{1}{2}$ to 1 per cent above the yield of high-grade bonds in the same type of industry, and this spread is maintained as one descends to lower types of bonds and stocks. The table below compares the yields on average market prices of fifteen high-grade industrial bonds and twenty high-grade industrial preferred stocks.¹⁸ The diminishing spread between the two series is significant of a changing public attitude which shows increased favor toward preferred stocks. Since the relative quality of the two series may not have remained constant, care should be exercised in interpreting the spread. An examination of the individual issues indicates that the companies represented in the bond series suffered rather more in the years 1932-1933 than those represented in the stock series.

YIELDS AT MARKET PRICES OF HIGH-GRADE INDUSTRIAL BONDS AND PREFERRED STOCKS*

Preferred			Preferred			Preferred		
Year	Stocks	Bonds	Year	Stocks	Bonds	Year	Stocks	Bonds
1910	6.30	4.83	1920	6.79	6.01	1930	5.54	4.95
1911	6.28	4.78	1921	6.80	5.96	1931	5.90	5.51
1912	6.27	4.81	1922	6.14	5.21	1932	7.32	7.46
1913	6.56	4.99	1923	6.12	5.26	1933	6.71	6.93
1914	6.49	4.93	1924	6.08	5.21	1934	5.80	5.29
1915	6.48	4.97	1925	5.90	5.06	1935	5.23	4.61
1916	6.19	4.89	1926	5.78	4.91	1936	5.04	4.37
1917	6.42	5.09	1927	5.51	4.83	1937	5.14	4.60
1918	6.70	5.45	1928	5.35	4.88	1938	5.17	5.07
1919	6.31	5.40	1929	5.49	5.05	1939	4.96	5.01

* Compiled from *Trade and Securities Service*, Standard Statistics Co

¹⁸ For a limited sample of railroad preferred stock yields, compared with bond yields by rating groups, see Guthmann, Harry G., "Railroad Security Yields to Investors: 1924, 1926 and 1928," *Journal of Land and Public Utility Economics*, August, 1931, pp. 256-259.

Return on common stock investments. The common stockholder is the real owner of the enterprise, and his return, theoretically as well as practically, includes a larger element of profit than that of other classes of security holders. In considering the return on common stocks, one might proceed by comparing earnings to the par value, or to the book value, of the stock, yet such a comparison would be of little practical use. The real interest of the investor centers on a comparison of the market price of the stock with the "earnings available" therefor. It should be noted that earnings and not dividends are here considered, for the reason that all earnings of the corporation, whether reinvested in the business or paid out as dividends, actually belong to the common stockholder. Where they are reinvested in the business instead of being paid out as dividends, the value of the equity behind the stock is increased by the amount of such retained earnings. Ultimately the common holder should get this return in the form of a larger current dividend rate, of appreciation in the value of his holdings, or of both.

A comparison of the market price of common stocks with earnings available will indicate, therefore, the real return which the investor receives. In this way only can we reduce to simple terms the current return which he is able to command by the commitment of funds in this type of investment. It is also true that such a study goes somewhat farther than did our previous discussion of the rate at which capital invested in various enterprises is able to earn, for in that discussion we confined ourselves to a comparison of earnings with the book value of the investment. The market value of the investment in an enterprise may, at any time, and generally does, vary from the book value of the investment. The mere fact that the railroad industry earned but 5 per cent on invested capital in 1925 does not mean necessarily that the purchaser of common stock in a typical railroad company would have paid book value for such an investment and been content to receive a 5 per cent return. As a matter of fact, a study of market prices of stocks will prove conclusively that the investor often expects and demands a return on his investment in excess of the rate which the book value of his investment is able to earn. In other words, the market value of stocks is often below book value, but not necessarily so. At other times, market price may exceed book value. Market, rather than book, value is emphasized because it represents the

amount which the investor must pay at a given time to acquire the investment.

In contrast with our previous discussion as to the rates earned on the book value of railroad and industrial investments, let us compare the rate of earnings on the market value of ownership equity therein as evidenced by stock prices. The following table¹⁷ will show the return on railroad and industrial common stocks based on average market prices, for the years 1928 to 1930, inclusive:

RATIO OF EARNINGS TO MARKET PRICES—
20 RAILS AND 20 INDUSTRIALS

<i>Year</i>	<i>Rail Stocks</i>	<i>Industrial Stocks</i>
1930.....	6.2%	5.1%
1929....	8.3	5.5
1928.....	8.5	6.0

Contrary to what one might expect, industrial stocks during these three years sold on a higher multiple of earnings, or at a lower capitalization rate, than did railroad stocks. The probable explanation of this discrepancy lies in the attitude of investors toward the railroads at that time. The experience with government operation during and after World War I had not been forgotten, and there was still doubt as to the ability of the railroads to maintain the then existing rate of earnings. Moreover, the possibilities of growth for the industrials were receiving increasing emphasis. Then, too, with a much larger number of industrial corporations to choose from, the largest and most stable were selected, most of which paid some dividend throughout the ensuing depression. In contrast the number of dividend-paying railroad stocks was so small as to make a continuation of that series through the 1930's impractical.

The market prices of securities, particularly common stocks, are subject to wide and sometimes erratic changes. Industrial earnings likewise vary greatly from year to year. With such instability in the two factors of the equation, it is reasonable to suppose that the per cent of earnings to the market price of common stocks will likewise fluctuate rather widely from year to year, and that the ratio between different groups of companies in the same year will also tend to fluctuate. For example, the average return on a group of selected industrials during the

¹⁷ Computations made by the authors, using twenty representative rail stocks and twenty industrial stocks of major corporations of the more stable type.

period 1922-1939, inclusive, varied from 10.74 per cent in 1923 to 4.90 per cent in 1934.¹⁸ The return by years for these leading better-grade issues is shown in the table given below:

AVERAGE DIVIDEND YIELD AND RATIO OF EARNINGS
TO MARKET VALUE—20 INDUSTRIALS: 1922-1939

Year	<i>Dividend Yields on Market Price</i>	<i>Earnings on Market Price*</i>
1939.....	4.60%	6.78%
1938.....	4.55	5.02
1937.....	5.12	6.69
1936.....	4.41	5.73
1935.....	3.94	5.76
1934.....	4.20	4.90
1933.....	4.61	5.12
1932.....	7.46	5.76
1931.....	6.01	5.78
1930.....	4.42	5.09
1929.....	3.52	5.51
1928.....	3.45	6.01
1927.....	4.43	6.59
1926.....	4.60	8.81
1925.....	4.27	8.77
1924.....	5.08	10.04
1923.....	5.12	10.74
1922.....	4.72	10.60

* Deficits omitted in the averaging process.

This table would indicate that the market prices of industrial common stocks of the type most favorably regarded for investment purposes have typically shown an earnings return of between 4 and 5 per cent. In the speculative enthusiasm of 1928 and 1929, prices rose enough to reduce this percentage below the 4 per cent level; while in the depression markets of 1931 and 1932, the return rose to 6.01 per cent and 7.46 per cent, respectively. Less favorably regarded industrials would be expected to show a higher and more variable ratio of earnings to average market price in years that did not produce actual deficits. As would be expected, earnings, and so earnings return, fell below dividends and dividend yields in the depression years 1931 and 1932. Those corporations whose earnings failed to recover after 1932 adjusted their dividends accordingly. A study of the earnings to market price data suggests three things: (1) a reappraisal by the public of common stocks during the 1920's, representing an appreciation of their growth possibilities; (2) a continuance

¹⁸ The individual items, before averaging, ranged from 0.03% to 33.66% (exclusive of deficits).

of the lowered ratio after the depression of the early 1930's, probably the result of an adjustment to the lower level of capital return seen earlier in the high-grade bond yield data; and (3) a narrowing of the spread between dividend and earnings return, which suggests the passage of the period of maximum growth for these particular major corporations. With the expansion of business and so probably of earnings under the stimulus of large-scale national defense spending, a corresponding rise in the market prices of industrial stocks might be expected. Actually, fears that such profits are temporary in nature and likely to suffer a setback in a postwar readjustment is likely to act as a brake upon market inflation as it did during World War I.¹⁰

The next table, showing the ratios between earnings and the average market price for recent years, indicates the same marked change between 1925 and 1930 noted above for industrial and railroad stocks. Where the typical metropolitan electric and gas common stock showed earnings of 8.4 per cent on the average market price in 1925, the return was but 4.5 per cent in 1930. With the declining markets of depression this percentage rose to 7.7 in 1932, and since then it has fluctuated between 6.0 and 7.9. The figures represent nine utilities serving the largest cities.

RATIOS OF EARNINGS TO AVERAGE MARKET PRICE
OF LEADING ELECTRIC AND GAS UTILITIES*

1939	7.2%	1933	6.8%
1938	7.6	1932	7.7
1937	6.5	1931	6.1
1936	6.0	1930	4.5
1935	7.9	1925	8.4
1934	7.3		

* Compiled by authors. Medians used to avoid influence of a few extreme cases.

We have no inclusive data relative to bank stocks at hand, but figures compiled on New York bank stocks would indicate that they were selling at a higher price, in relation to both dividends

¹⁰ See Badger, R. E., *Valuation of Industrial Securities* (New York: Prentice-Hall, Inc., 1925), p. 122. "If one were to make any general summary on the basis of these data, he would probably come to the conclusion that investors, during the past ten years, at least, have insisted on a ratio of earnings to the prices of common stocks of industrial concerns ranging between 10 per cent and 30 per cent, but, normally, running over 15 per cent." The data, however, were drawn from the years 1912-1921 and are subject to the unusual influences of the World War and postwar conditions. Thus the extraordinary earnings of 1916-1918 were capitalized at a very high percentage for the very good reason that they were regarded as temporary.

and earnings, than any of the classes of stock so far studied.²⁰ See the following table:

AVERAGE DIVIDEND YIELD AND RATIO OF EARNINGS TO MARKET VALUE FOR 17 LEADING NEW YORK BANK STOCKS

Year	<i>Dividend Yield on Market Price</i>	<i>Earned on Market Price</i>
1939	4.53%	5.48%
1938	4.69	6.09
1937	3.64	5.02

It may seem strange that bank stocks should have sold on so low a basis in respect to both current dividends and earnings. The explanation undoubtedly lies in the fact that these are the leading institutions in a center of finance where investment funds are plentiful. Similar low return, it has been seen, can be found among leading industrial corporations that have topmost prestige and are regarded as having growth possibilities. Hopes are fed by the previous growth of such corporations. By retaining earnings and reinvesting them at a high rate of return, a form of compound interest accumulation takes place which makes future income possibilities appear extremely bright. A former factor in the case of major commercial banks, particularly in New York City, was the development of security affiliates, which produced large profits in a short period and were expected to continue doing so. The high prices of such common stocks, therefore, may be said to anticipate future growth rather than to discount present earnings.

Summary. In the present chapter the return on invested capital has been treated under three major heads. We first considered the yield on selected types of high-grade bonds and found that interest rates, as indicating the contractual return on invested capital, have fluctuated during the past forty years between about $2\frac{1}{2}$ per cent and 6 per cent. We next considered the return on the aggregate capital invested, as reflected by the book value, for major corporations in various types of enterprises. The aggregate annual return on capital invested in the railroad industry in this country ranged from under 4 per cent to slightly over 5 per cent during most of the fourteen years preceding 1930. Since then it has averaged about 2 per cent. In public utility enterprises the return averaged somewhat

²⁰ Table compiled by authors. Data for earlier years are given in the table on p. 527.

higher, being between 7 and 8 per cent in the 1920's, between 6 and 7 per cent in the 1930's. The average rate of return for all national banks was about the same in good years, although the variation from year to year was much greater, and presumably would be still greater among individual banks. Industrial earnings vary greatly among industries and individual concerns. Although averaging as low as, or possibly lower than, public utilities, industrials do, nevertheless, in individual cases offer an opportunity for much higher profits.

The final question considered was the relation between earnings and the market return on various classes of stocks. Preferred stocks were regarded in much the same light as bonds, the rate of return, however, running somewhat higher than upon bonds of a similar position. In the case of common stocks, however, the market expresses the return required in various industries to attract new capital. Thus common stocks of electric light and power companies during recent years have sold upon a very fluctuating basis, but upon the average presumably somewhere in the neighborhood of 12 to 17 times earnings, or on a basis calculated to show earnings of from 8 to 6 per cent on market price. Railroad common stocks have sold on a somewhat lower ratio to earnings: probably averaging about 10 times earnings in the more normal years. Industrials show the greatest variation but leading issues of the more stable earnings type showed a ratio of about 10 times earnings in the early 1920's but have since declined and tended to move between 15 and 18 times earnings in recent years. Bank stocks have sold at substantially higher prices than any of the other groups. These averages vary from time to time in accordance with general market conditions and furthermore will vary widely in different companies. The general picture only has been given at this time. Subsequently we shall consider in more detail the factors which cause variations in the ratio in specific cases.

5

Determination of an Investment Policy

To many individuals the act of investment consists simply in selecting and purchasing conservative securities. There is no effort on the part of such individuals to study the particular circumstances surrounding the beneficiaries of the funds at their disposal or to construct definite policies to guide themselves in the administration of such funds. It is unfortunate that this situation should exist in so many cases, for, without a definite and constructive investment program, it is impossible for one to secure the maximum benefits from the capital funds at his disposal. This is true, not only in cases where the individual is managing his own funds, but also where he is managing the funds of a trust, a bank, an insurance company, or a corporation. The first step in the investment process, therefore, should be the mapping out of a definite policy.

How a definite policy is determined: problem of the business man. The particular plan or program to be adopted in a given case will depend on the circumstances which surround the owner or beneficiary of the fund at issue, or the purposes for which the fund has been set up. The truth of this statement will be better appreciated if we consider briefly the situation as it presents itself in respect to certain types of funds. Let us suppose that a young business man has reached that point in his career where he finds it possible to save a few thousand dollars annually. His present salary is sufficient to meet all current needs, so that he is not dependent in any way on his investment income. His ultimate purpose is, of course, to build up an estate sufficient to

support himself in old age and to provide for his family at death. What broad policies should he adopt in this investment plan?

Functions of life insurance. His first step should be to contract for enough life insurance to support his family in the event of an untimely death. The amount of insurance that he can carry will depend on his income, it is true; but at least 25 per cent of his savings should be allocated to life insurance. If his annual savings amount to \$4,000 at thirty-five years of age, this will enable him to carry about \$40,000 of straight life insurance. In this way he has created an estate, so to speak, at the start of his career. This should be built up as rapidly as possible until his total life insurance amounts to between \$75,000 and \$100,000. At this point he has provided for his wife and children regardless of what happens to himself or the other funds he accumulates. There are many different types of life policies, but the two most common are the so-called endowment policy and the straight life policy. Under the endowment policy the annual premiums are higher, but at the end of a definite period, usually twenty years, the policy is fully paid and has a surrender value equal to the face of the policy. The straight life policy, in contrast to the endowment policy, requires the payment of premiums during the life of the insured. In case the insured takes his policy in a mutual company and elects to allow his dividends to remain with the company, however, his policy becomes paid up at the end of a period of years, possibly thirty-five or forty years, depending on the dividend policy of the company and the age at which the policy is purchased. In either case, the policy has a definite surrender value, which increases with the number of years it has run, against which the insured may at any time borrow.

The endowment policy just referred to is designed for the person who wishes to combine saving with protection. The annual premium cost of a thousand-dollar, twenty-year endowment, therefore, is so determined that at the end of twenty years the insured will have a sum of \$1,000 due him, whereas, if he dies in the meantime, the death claim will be a like sum.

A much larger part of the premium of a straight life policy is for the cost of protection. The risk of a death loss increases for the insurance company as the insured grows older, and consequently in order to avoid an increasing premium, an extra amount is collected over what is necessary for pure insurance protection, which is set aside as a reserve. This accumulation

grows throughout the life of the policy until at the age of 96 (under the practice in the United States) it is sufficient to pay the face of the policy. An ordinary life policy is thus an "endowment at 96." In addition, most companies experience an actual mortality rate less than that expected and are able to invest their funds at more than the actuarial rate of interest assumed in setting their premium rates, so that they are able as mutual organizations to pay "dividends," really partial refunds of premiums, to their policyholders. If these amounts are left with the insurance company, they make even a straight life policy an endowment.

The question is raised, from an investment standpoint, whether the purchase of an endowment policy is a good method of saving. The answer will depend on the return which the investor expects on his funds. Insurance companies, although generally computing their premiums on an assumed rate of interest of 3 per cent, usually earn somewhat more. The insured can estimate his probable future return only on the basis of the past experience of the company, keeping in mind the low return of a conservative investment policy and the overhead costs which must be deducted from that return. When interpreting the record of the company, the investor must remember changing interest rates and mortality experience as factors likely to make the future different from the past.

Life insurance is coming to be more thoroughly appreciated as a vehicle for investment. It should be the first investment contract made by the young man. In this way he is able to create an estate at the beginning of his career; he obligates himself to definite annual payments; and the value of his living estate increases annually.¹ Life companies also offer various forms of annuities, which are investment rather than insurance contracts. In return for a sum invested with the company, a regular income is paid to one or more annuitants as long as they live. Since the income paid includes not only ordinary interest but also a fraction of the principal each year, the annuitant is able to enjoy a larger spending power than if he lived on the interest alone. He is guaranteed against outliving his capital, because the payments made to him are based upon the average expected length of life. As a result, those who live a short life

¹ Other types of insurance may be studied in any standard text on life insurance. See Riegel, R., and Loman, H. J., *Insurance Principles and Practice* (New York: Prentice-Hall, Inc., rev. ed., 1929).

may receive back less than the sum they invested, while those who live longer than average collect more.

The more important forms of annuity are:

1. *Simple immediate annuity.* A lump sum is paid to the company, for which the annuitant receives an income for life, the income beginning immediately. This type of contract appeals to the individual with no dependents who wishes to use up his capital but wants to make sure that he will not exhaust his capital before death. From the table below, an idea may be obtained as to the extent to which income is increased when annuities are purchased, at the advanced ages at which it is common to retire from active business. Since these rates are fairly representative and the average company counts upon earning only about 3 per cent on its own investments, it is apparent that the major part of the annuity income at these ages is a "return of principal."

LIFE ANNUITY RETURNS PURCHASED BY PAYMENT OF \$1,000

Age at Purchase	FOR A MAN		FOR A WOMAN	
	Per Month	Total Per Annum	Per Month	Total Per Annum
60.....	\$5.89	\$70.68	\$5.17	\$62.04
65.....	6.85	82.20	5.89	70.68
70.....	8.13	97.56	6.85	82.20

2. *Joint and survivorship annuity.* Like the preceding form of annuity, this type pays an income to two or more persons as long as one of them survives. The income is lower than that from the single annuity. This form would be selected by a husband and wife who did not feel any need for leaving an estate.

3. *Refund annuity.* This form, which in reality is a modification that can be applied to either of the preceding forms, provides for the refund to the estate of an annuitant of an amount equal to the excess of his original payment to the company over the amounts he has received back as annuity, should his death occur before such a sum has been received. The annual income is lower under this form of policy than under the ordinary annuity.

4. *Deferred annuity.* Instead of investment of a lump sum, regular annual payments are made during the productive period of the saver, to be used to purchase an annuity upon retirement. In effect, this contract is merely a savings bank account carried with the life insurance company but accumulated at a regular rate until the purchaser is ready to retire. In case of death before

retirement and the purchase of an annuity, the accumulation is returned to the estate of the saver. At the time of retirement any type of annuity desired may be chosen.

Annuities are especially advantageous as a device for maximizing the current income of those who have small estates and do not feel the need for leaving property for dependents after death. Thus, a woman at the age of 65, with \$10,000 accumulated, would have an income of but \$300 per year at 3 per cent, leaving an estate of \$10,000 at her death. At the rates shown in the table, however, she would have \$706.80 to spend annually if she purchased an annuity, but would leave no estate. The investment advantages lie in the safety and the freedom from the cares of management, both particularly important considerations after retirement. Under the Federal income tax law, 3 per cent of the amount paid for the annuity must be reported as taxable income. Annuity income over and above the 3 per cent becomes taxable income only after it exceeds the total amount originally invested. The chief disadvantage of the annuity probably lies in the risk of reduced purchasing power in the event of price inflation.

The part played by bonds. What should be the investor's plan for the remainder of his funds? What types of investment best fit his requirements? Should he purchase all bonds, or all stocks? Here, again, the answer to these questions will vary to some extent with individual cases; but let us assume a typical case, if such exists. It is generally wise for any investor to allocate a portion of his funds to the purchase of high-grade bonds, the most secure bonds that can be purchased, with a reasonably ready market. One third to one half of our hypothetical investor's free funds should, normally, be devoted to the purchase of such obligations. In this way he lays a foundation for his living estate. He is building up a fund in relatively riskless investments, yielding a low return, to be sure, but yielding, nevertheless, a sure return, which some day may prove a veritable life-saver. Such investments, furthermore, may always be turned into cash with only such loss as may arise from fluctuations in the interest rate.

Common stocks. Another portion of his funds may profitably be allocated to the purchase of high-grade common stocks. In entering this field, the investor is opening to himself opportunities for the greatest profits, but he is also subjecting himself to the risks of large losses. There is no common stock which does not carry with it the risk of a substantial shrinkage in principal value.

On the other hand, out of a group of well-selected common stocks, a good many should advance in value over a period of years. This situation may be stated in a somewhat different fashion. Let anyone who has made a reasonable study of investments select the twenty common stocks which, in his judgment, seem the best. Any one of these stocks may go down in value; but, if the selection is made with proper judgment, the combined value of the twenty should go up over a substantial period of time.² This situation enables us to lay down a definite rule for investing in common stocks: Diversify purchases over a wide range of companies and industries, always endeavoring to select the leading stocks within the industrial group.

It is assumed in the preceding paragraph that the investor is not endeavoring to get trading profits, but is interested in purchasing stocks outright purely for investment purposes. The technique of trading is essentially different from the science of investing. The former is an art, dependent upon short-run market influences which make for price fluctuation, rather than upon the consideration of long-run fundamentals which determine investment income.

Current versus future income. In the selection of common stocks it is necessary to consider whether present income is desired, or whether present income may be sacrificed in the interest of a future appreciation in principal. There are companies which pay very small current dividends on their common stocks, but which plow back into the business a large portion of their earnings. This has been especially true of the larger chain stores during the years 1921-1930. Such a policy is desirable so long as the funds so employed can be advantageously utilized in the business. The stockholders get a low immediate return on the basis of the cash dividends they receive, but over a period of years they should, on the average, realize a substantial increase in the value of their equities if the concerns are operating successfully.³ The question might reasonably be asked: Why should the company not pay out large dividends and secure the necessary funds for expansion by borrowing or by issuing more stock? This is an alternative, to be sure; but if this policy were adopted, the increased earnings would have to be distributed over a larger capital

²This matter is further discussed in Chapter 11. The fundamental principles of long term investment in equities have not been changed by recent events.

³This subject is discussed further on p. 245.

investment, so that the original equity, now thinned by the introduction of new capital from without, would not advance anywhere nearly so rapidly in value. Where the corporation expands on the basis of its own earnings retained in the business, it is possible, with successful management, to make a small initial investment grow into an ultimate investment of very high value.⁴

There are certain types of businesses which are peculiarly susceptible to this policy. Chain store companies, banks, and insurance companies, under proper management, will show a tendency to grow with the increase in population and wealth of the community they serve. The trend of growth in such companies is perhaps more certain than in typical industrials which are susceptible to style changes and more severe competition. Urban real estate is another type of investment offering to the owner an opportunity for profit through community growth. Under normal conditions the current return will often be found low in relation to the selling price of the investment. We have already noted the situation in respect to bank stocks. Insurance stocks likewise have a tendency to sell high in relation to their current earnings and dividends, the ordinary yield thereon averaging between 2 and 4 per cent.⁵ Chain store stocks also sold on a high multiple of earnings basis during the 1920's, the multiple running as high as twenty in some cases.⁶ During the latter part of the boom period ending in 1929, public utilities sold at relatively high prices. With these companies currently facing hostile governmental control and in some cases competition, and increasing taxes, they have, temporarily at least, been in less public favor than formerly.

The manner in which appreciation takes place in certain kinds of stocks is aptly illustrated by Figure 4, which shows the growth in earnings of the Woolworth Company. Starting with an earning capacity of slightly over \$10 a share in 1914, the company so expanded out of earnings that it was able to show more than \$79

⁴One outstanding example of this very thing is the history of the Ford Motor Company. The original capital of this company in 1903 was \$28,000. The company has never borrowed additional capital, nor has it ever sold additional stock. As a result of stock dividends, the capital was subsequently increased to \$2,000,000. The value of the company was subsequently estimated at between \$750,000,000 and \$1,000,000,000. In 1919 the minority stockholders sold out to Henry Ford at \$12,500 a share.

⁵See Chapter 20.

⁶F. W. Woolworth stock sold at 22.1 and 21.3 times earnings in 1928 and 1929, respectively.

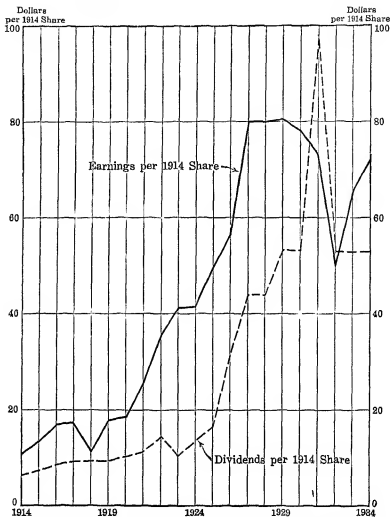


Figure 4—F. W. Woolworth Company, Earnings and Dividend Record, 1914 to 1934.

a share in 1927. During this period, the company retained, on an average, over 50 per cent of its earnings in the business. From then until 1931 the sum remaining after the payment of dividends was about one third of total earnings. (The sharp rise in the dividend for 1931 was due to a special distribution paid out of the non-recurring income of \$19.80, which was omitted from the earnings curve.) In the years immediately prior to 1930, the earnings growth showed distinct signs of slowing up, rising from

\$79.73 in 1927 to only \$80.52 in 1929, in terms of a 1914 share. In the depression years shown, 1931-1934, earnings followed the trend of general business. In fact, cyclical fluctuations since 1930 have been so violent as to overshadow the ordinary growth factor and to make data after that year of doubtful significance. While the stock has always sold to yield a small cash return, the investor has been handsomely rewarded by the large appreciation in the principal value of his holdings, which was determined by the capitalized value of a growing earning power.

High-grade urban real estate, such as that with stores and office buildings, has often sold to yield a relatively low yield because appreciation of land values was expected. In cases where the net return is below the common rate of return for capital similarly employed elsewhere, expected appreciation may explain the deficiency.

For the investor who chooses to forego present income in return for an appreciation in the ultimate value of his investment, stocks in companies which have a high earning power on invested capital, which have demonstrated a consistent growth, and which pay a small per cent of total earnings out as dividends, will often show a favorable ultimate return, even though purchased at prices which seem high in relation to current earnings and dividends.

Discount bonds as a means of saving. A modification of the preceding plan may be put into effect through the purchase of discount bonds, provided the investor uses only the current income, or coupon interest, and allows the appreciation which takes place in the value of the bond to accumulate as principal. The appreciation in the value of a "discount" bond may be of two kinds: normal appreciation in value as the bond approaches maturity; and appreciation due to an improved market position. A clear understanding of these two types of appreciation in bond values is necessary to the student of investments and may be explained briefly at this point, although the principles involved are taken up in greater detail in Chapter 27, which deals with the mathematics of investments.

That the man who purchases a ten-year bond bearing a 6 per cent coupon rate at a price of 96.365 will receive a return on his commitment in excess of 6 per cent is obvious.⁷ If there were nothing to consider except the fact that he receives \$60 a year on

⁷ The mathematical net yield return here would be just $6\frac{1}{2}$ per cent.

\$963.65, his return would be in excess of 6 per cent. In addition to his coupon rate of interest, however, which is \$60 a year, he will receive at the end of ten years a principal sum of \$1,000, or \$36.35 more than his purchase price. This additional premium is really income, for at maturity the purchaser of the bond might deduct \$36.35 from the \$1,000 he receives, spend it if he so desires, and still have his original capital, \$963.65. On the other hand, if he uses only the \$60 received annually and considers the entire \$1,000 when paid at maturity as principal, he has saved the difference between the purchase price and the par value of the bond.

In accordance with the above principle there must be a regular appreciation in the value of the bond each year from the time it is purchased until it matures. This enhancement in value is necessary if the bond is to sell continuously throughout its life at the yield on which it was originally purchased. This point may best be illustrated if we take the extreme case of another 6 per cent bond having but one year to run and selling at the same price as the ten-year bond, that is, 96.365. Wherein does this situation differ from that just described where the bond had ten years to run? The answer is this: in the former case the purchaser had to wait ten years for his \$36.35, whereas in the latter instance he is required to wait only one year. The yield in the latter case would be greatly in excess of that in the former. In fact, a 6 per cent bond having one year to run would have to sell as high as 99.523 to yield $6\frac{1}{2}$ per cent. In other words, a ten-year, 6 per cent coupon bond, always selling to yield $6\frac{1}{2}$ per cent, will advance year by year until it reaches par at maturity. The market course of such a bond, always yielding $6\frac{1}{2}$ per cent over a ten-year period, is shown in Figure 5.

On the other hand, if the credit position of this bond improves during the period, or if money rates decline, it is conceivable that the market price of the bond may advance at a more rapid rate than that assumed and thus sell on a lower basis, say, to yield 6 per cent. Assume, for instance, that this takes place at the end of the third year as indicated by the point A', on the chart, at which time the bond still has seven years to run. In this case, the bond would sell at par as contrasted with the former assumed price of 97.223. By selling at par at this time the purchaser would have made an actual profit of \$27.77 on his bond.⁸

⁸ Where there is a general reduction in interest rates which lowers the yield of all bonds, a profit is created for bondholders as a class. While this is technically true, investors are not in a position to profit thereby. Should they

It appears from the preceding analysis that two kinds of operations are possible in the purchase of bonds. One operation involves the purchase of low-coupon bonds selling at a discount and the holding of such bonds until maturity. The other operation is based on the purchase of bonds that are selling below their true values, or bonds of companies whose credit status is likely to improve shortly. When this improvement is recognized by the

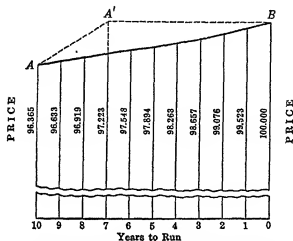


Figure 5—Prices at Which a 6 Per Cent Bond Having Ten Years to Run Will Sell to Yield $6\frac{1}{2}$ Per Cent Each Year.

market, then the bond advances in value at a more rapid rate than that required to maintain a given yield, and a profit has been realized. Where the advance in value and the corresponding reduction in yield are a market affair—that is, when the movement in respect to a given bond is at the rate shown by the market

dispose of their holdings, they would be confronted with the necessity of reinvesting at a time of generally high bond prices. The bondholder is thus in the same position as the man who bought his home in 1913 at a cost of \$10,000. Suppose that, fifteen years later, he finds that it is worth \$16,000, as a result of general increases in property values. It is true that he was fortunate to have made his purchase in 1913. On the other hand, if he takes his profit by selling, he must seek another place in which to live at a time of generally high property values. His profit, therefore, is not a real profit in the sense that, having sold out, he may now buy another piece of property as good as his was in 1913, at the same price as he then paid. From 1924 to 1928, bondholders as a class witnessed a substantial appreciation in the value of their holdings. Such appreciation profits are less real than the bondholders generally suppose, for, having sold a given bond, they are then compelled to reinvest at a time of low interest rates.

as a whole—then the investor is hardly in a position to realize his profit.

Part played by liquid funds. A portion of the business man's funds should be retained in liquid form. This may be accomplished by holding such funds in a savings bank, in short-term securities, or in a call account. This policy not only provides funds for emergencies, but has the further advantage of enabling the owner to make the most of market swings and so-called extraordinary opportunities. There are always periods when forced selling on the exchanges causes high-grade securities, particularly stocks, to sell below their real worth. The man with ready cash at such times can pick up bargains. Likewise, after a long upturn in the market, it is often good policy to convert a portion of one's stockholdings into cash. The percentage of one's total funds to be retained in cash at any time will depend, therefore, on the current financial situation.⁹ During a normal period—that is, when stock prices are well within the extreme high or low points that they attain at the end of a swing—20 per cent is suggested as a reasonable proportion to be maintained in liquid form. After a long period of declining prices, on the other hand, some of these funds, possibly a substantial portion, should be put in high-grade stocks. At the other end of the swing, some stocks will be sold at the then high level of prices and the cash retained for a more favorable buying period.

Profits versus investment risk. Other questions that must be settled by our hypothetical investor before he can finally determine his program involve consideration of the extent to which he wishes to assume investment risks in order to increase his probable return. Not only is it possible for one to enhance his profit by the purchase of certain types of common stocks, but a higher return may be secured by the purchase of preferred stocks in the place of bonds, or by the purchase of low-grade bonds instead of high-grade bonds. Let us illustrate this point by two assumptions.

X, following the general plan so far outlined, divides his investments between high-grade bonds which sell at low yields, and the highest-grade common stocks he can select, such as American Telephone and Telegraph, General Electric, du Pont, and International Business Machines. At no time will X consider the common stocks of new enterprises, nor those of industries where

⁹ For a more comprehensive discussion of the business cycle and investing, see Chapter 20.

the business risk is high, as in the case of motor stocks. Similarly *X* never invests in preferred stocks. To this man preferred stocks may offer a somewhat higher return than that promised by high-grade bonds, but when he purchases a fixed income-bearing security, he wants a maximum of safety rather than a somewhat higher yield. He concentrates all his investment risk in his common stockholdings where, as an offset, he has the chance of a large profit if the concerns in which he invests are successful.

In contrast with *X*, *Y* is quite willing to descend from the highest-grade investments to so-called "business men's" investments. Many of the bonds he purchases are rated *B*, or at best only *A*. The average return on his bond investments is about 1 per cent higher than that of *X*. And, furthermore, *Y* considers preferred stocks in much the same light as bonds. He therefore uses a part of his bond funds for the purchase of preferred stocks, thus raising his fixed income still further. The same general policy is followed in the purchase of common stocks, with the result that *Y*'s portfolio contains some of the motor stocks and the common stocks of certain new enterprises, such as aviation, electric refrigeration, plastics, and radio, and some of the smaller oil companies.

Which of these two policies offers the greater opportunities for profit? Which is the better for the average business man? The answers to these questions are not easy, for, if *Y* keeps in constant touch with market and business conditions, and is sufficiently informed to make the necessary shifts when conditions warrant, he will probably make higher profits over a period of years than will *X*. On the other hand, if he is not constantly alert to changes in tastes or to shifts in the competitive situation, or if he is not clever in foreseeing the ultimate fate of new enterprises, or in tying up with the best of management in the more speculative fields, he probably will suffer losses over a period of years that will wipe out all his profits. The extent to which a business man can afford to descend from the highest-grade to medium-grade securities, therefore, will depend in part on the amount of time he can afford to devote to the execution of his investment program and in part on his selective ability. It will also depend on the amount of risk he can afford to take. These are all matters which the individual must decide for himself, and they will vary according to the circumstances of the particular case.

Hedging against changes in price level. Another matter of general application requires attention at this time. We refer

here to the function played by common stocks in an investment program. When we were discussing the allocation of our business man's funds between bonds and preferred stocks, the essential reason given for the inclusion of common stocks among his investments was the possibility of a greater profit therefrom. It is true that a greater profit may be derived from investment in common stocks than in bonds, but this is not the only reason for diversification between these two types of securities. Another and more important reason for investing in both stocks and bonds is the desirability of hedging against long-time fluctuations in the price level. Economists for many years have recognized the effect of rising and falling prices on various classes of security holders, but not until the past few years has this question been adequately studied and understood by the lay investor.¹⁰ The rapid advance in prices occurring between 1913 and 1920 inflicted severe losses on the holders of contractual or credit securities, such as bonds, notes, mortgages, and preferred stocks, and created profits for those who invested in so-called ownership securities, such as common stocks, convertible bonds, or participating preferred stocks. From 1930 to March, 1933, the rapid fall in commodity prices, real estate values, and in equities was such as to react most favorably on the holders of high-grade contractual obligations. The possibilities of currency or credit inflation under present dubious world conditions again indicate the uncertainties of our economic structure and the need for a program sufficiently flexible properly to hedge against price movements in either direction.

In order better to appreciate the situation just described, we shall consider briefly the effects of rising and falling prices on debtors and creditors. When a bondholder, or a creditor, lends money to a corporation, he parts with a given number of immediate dollars in return for the repayment of a like sum at a future time. If prices advance 100 per cent between the time he makes the loan and the time he gets it back, he receives the agreed number of dollars back, it is true, but these dollars are subsequently worth in terms of goods only 50 per cent as much as they were when the loan was made. The bondholder, in terms of goods and services, therefore, receives only one half of what he expected to receive when the loan was made. The stockholder

¹⁰ One of the most comprehensive of the earlier expositions of this subject is found in Fisher, Irving, *The Rate of Interest* (New York: The Macmillan Co., 1907).

of a corporation, as distinguished from the bondholder, is a partial owner of the business. If prices are rising, the value of his property rises, and hence, the value of ownership therein. During periods of rising prices, profits are also high, business is active, inventories on hand appreciate in value while being manufactured into finished stock, and generally, wages advance less rapidly than prices. Furthermore, if the corporation has bonds outstanding, it becomes increasingly easy to pay these off during a period of rising prices, for dollars are depreciating in value and represent a smaller amount of goods and services. During periods of rising prices, therefore, the stockholder gains through an appreciation in the market value of his holdings and through the larger dividends he receives. The situation is reversed, of course, during periods of falling prices. In terms of purchasing power, the creditor, or bondholder, gets the agreed amount of dollars, but these represent more goods and more services than he anticipated. The stockholder, as owner and debtor, finds the value of his property decreasing. Profits shrink, business activity falls off, and it becomes increasingly hard to pay off obligations incurred during a period of high prices.

A full recognition of this situation has created a growing interest in common stocks as a type of investment. Twenty years ago stocks were regarded as speculative and very risky, a type of investment to be avoided by the conservative investor. Particularly were stocks considered unsafe and undesirable as trust fund investments. This tradition, however, completely overlooked a very important element of risk. To illustrate concretely, let us assume that a man in 1913 who prided himself on his conservatism invested his entire fund of capital, amounting to \$1,000,000, in high-grade, long-term bonds, which, at that time, could not be bought to yield more than 5 per cent. Such an investment would have yielded him an annual income of approximately \$50,000. In 1920 this man, while still receiving \$50,000 annually, would have found retail prices on the average 126 per cent higher than in 1913.¹¹ In other words, in 1920 his \$50,000 would have purchased only as much as about \$22,100 would have purchased in 1913.

Another man, with an equal amount of money, but less conservatively inclined, decided at the same time to invest his funds entirely in common stocks. Being unfamiliar with the technique

¹¹ Based on Bureau of Labor Statistics Group Index of Prices for 1920. Taken from the *Federal Reserve Bulletin*, February, 1923, p. 210.

of selecting securities, he determined to invest approximately \$100,000 in each of the ten most active industrial stocks on the New York Exchange, without any regard to their investment merit. He therefore looked up the record of sales the first week of January, 1913, and invested his \$1,000,000 as shown in the following table, taking the first ten listed stocks in the order of total number of shares sold. If he had held these stocks intact during the period from January 1, 1913, to January 1, 1920, he would have realized cash (or scrip) dividends amounting in all to \$843,176, which is equivalent to an annual average return of \$120,454, or about 12 per cent on his original investment. The man who selected common stocks as a medium of investment thus, because of the larger current income that he received, overcame in part the depreciation in the purchasing power of the dollar which took place during this period.

<i>Company</i>	<i>No. Shares Purchased (All Common)</i>	<i>Price per Share</i>	<i>Total Cost</i>
American Tobacco.....	350	\$287.00	\$100,450
Anaconda Copper. ..	2,500	40.00	100,000
Bethlehem Steel.....	2,500	40.00	100,000
California Petroleum..	1,900	52.50	99,750
Chino Copper.	2,200	45.00	99,900
Mexican Petroleum.....	1,380	72.50	100,050
Ray Consolidated.....	4,760	21.00	99,960
U. S. Rubber... ..	1,540	65.00	100,100
U. S. Steel	1,480	67.50	99,900
Utah Copper.	1,700	59.00	100,300
Total Cost.....			\$1,000,410

The story is not complete, however, until we consider the changes in the market values of the two groups of securities during this seven-year period. In 1920, bonds of the same grade as those purchased by the first man in 1913 were selling to yield over 6 per cent. This naturally meant a shrinkage in the market value of his holdings. Some idea of this reduction in principal value, on January 1, 1920, may be approximated by calculating the present value of a permanent annuity of \$50,000 on a 6 per cent basis. Such a computation would give a value of \$833,333, as compared with a 1913 value of \$1,000,000, based on a 5 per cent rate of capitalization. It may be true that the actual market value of the first man's holdings, even though each bond was quoted to yield exactly 6 per cent, would not have been precisely \$833,333, on January 1, 1920. In practice, he would have pur-

chased bonds having definite maturity dates and not permanent annuities. Yet this value would have been approximated had his holdings consisted largely of long-term bonds. In any event, we are less interested in the actual difference in market values between the two dates than in the fact that a real and substantial decline in the value of high-grade bonds did take place between 1913 and 1920. Figure 6, showing the course of prices from the period 1913 to 1939, will indicate clearly the fact here empha-

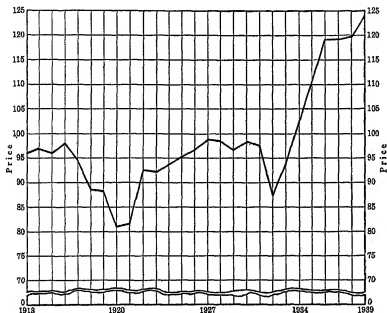


Figure 6—Course of High-Grade Bond Prices, 1913-1939.

sized.¹² The average yield on sixty high-grade bonds in 1914 was 4.58 per cent. The average yield in 1920 was 5.88 per cent. This yield change was effected by the change in price shown in the figure. (The reverse situation is found in the period 1932-1939.) The holdings of the second individual, however, who bought only common stocks, had a market value of approximately \$2,070,370 on January 1, 1920, or \$1,069,920 more than the original cost in 1913. The higher cash return already noted, together with the enhanced market value of his holdings, would have enabled him

¹² Prices are those of a 25-year bond with a 4.40 per cent coupon the yield of which is the average of the high-grade bonds charted in groups in Figure 3.

in large measure to offset the depreciation in the purchasing power of the dollar which occurred between 1913 and 1920.

This example is presented to show the desirability of insuring against fluctuations in purchasing power by diversifying one's investments between stocks and bonds, rather than to bring out any of the features connected with common stock investments. The inclusion of stocks of four copper mining companies and all but two of the stocks—those of American Tobacco and United States Rubber—of companies either wholly or partly engaged in the extraction of mineral raw materials, gives a list that is exceptionally unstable in earnings. The subject of selecting suitable common stocks will be treated in detail in a later chapter.¹³ We are therefore not interested especially in the validity of the period covered in the preceding example. It is true that unusual events occurred between 1913 and 1920, which may not soon be repeated. In fact the period 1929 to 1933 witnessed events quite as unusual in the opposite direction. During this period the world suffered from the worst economic crisis ever recorded. Stock values, as measured by many of the customary indices, declined to about 10 per cent of their 1929 highs. The losses from both inflation and deflation on such an unusual scale may be regarded as exceptional, but they may be met, at least in part, by including both bonds and stocks in an investment program, and it is this fact which we now seek to emphasize. An advance in the general price level *per se* affects bondholders adversely, but has a favorable influence on common stocks as a class, since they represent ownership in actual property. Conversely, falling prices react unfavorably on stock values, but enhance the purchasing power derived from bonds.

Diversification between stocks and bonds is especially desirable in those cases where income from the invested fund is to be used in purchasing commodities and services. The funds of educational institutions, libraries, estates, and individuals are invested to yield purchasing power to the beneficiaries, or owners. Quite different, however, is the investment of the reserves of life insurance companies and of bank deposits. In both of these cases nearly all obligations of the investing institution are contractual—that is, are payable in a fixed number of dollars. Because the question of the purchasing power of the dollar is largely eliminated, funds of this nature should be invested in the safest dollar obligations available that yield a satisfactory return. Such ob-

¹³ See Chapter 11.

ligations are found among bonds, mortgages, and notes of corporations and individuals, where properly secured by assets and earning power.

Some problems in the administration of trust funds. The policies which govern a man in the investment of his own funds differ from those he would normally follow in managing the investments of others. The man who accepts a fiduciary position is at once charged with certain responsibilities that should find expression in his subsequent acts.

The particular types of investment which the trustee may make depend, in the first instance, on whether the creator of the trust gave any instructions in the document creating the trust as to the manner in which the fund should be invested. Where specific instructions are thus given, they govern the trustee, who may do anything in the way of investing for which he has authority in this document. In cases where the creator of the trust gives no directions, then the law of the state in which the decedent was domiciled will govern the trustee in his acts.

States fall in two classes in respect to the control they exercise over the acts of trustees: (1) those which have specific statutes defining so-called legal investments; and (2) those where the common law governs the specific investments that may be made by trustees. New York may be taken as a good illustration of the first group of states. The statutes of this state definitely limit the investments of trustees (unless specific instructions are given in the instrument creating the trust) to the following: first mortgages on unencumbered real estate to the extent of two thirds of its appraised value; certain first mortgage guaranteed bonds; U. S. government bonds; New York state and municipal bonds; the bonds of nearly all the other states and of most cities of the United States of more than 45,000 population, whose debt is properly limited in respect to population and assessed valuation; and certain railroad and utility bonds.¹⁴

In Massachusetts, which may be taken as a good illustration of a state which does not limit trustee investments by statutory enactment, the rule is that of good faith and sound discretion; that

¹⁴ A valuable source for the current statutory requirements for investments by trustees is the annual *State and Municipal Compendium*, issued by the publishers of the *Commercial and Financial Chronicle*. For a discussion of statutes, decisions, and general principles, see McKinney, Frank C., *Trust Investments* (New York: Trust Companies Magazine, 2nd ed., 1927). A general work to consult is Riddle, N. G., *The Investment Policy of Trust Institutions* (Chicago: Business Publications Co., 1934).

is, such discretion as a man would use in making a permanent commitment of funds for the sake of income and not for speculation. A general expression of the duties of trustees under the common law of that state is set forth in the following statement:

A trustee, whose duty it is to keep the trust fund safely invested in productive property, ought not to hazard the fund under any temptation to make extraordinary profits. . . . Our cases, however, show that trustees in this Commonwealth are permitted to invest portions of trust funds in dividend paying stocks and interest bearing bonds of private business corporations, when the corporations have acquired by reason of the amount of their property and the prudent management of their affairs such a reputation that cautious and intelligent persons commonly invest their own money in such stocks and bonds as permanent investments.¹⁵

A trustee cannot ordinarily be held liable for a mere error in judgment in making or failing to make an investment, unless the error is so bad as to show either that he failed to exercise sound discretion, or that he acted in bad faith. Furthermore, the question whether the trustee acted in good faith and exercised sound judgment must be determined by the situation at the time the investment was made, and not in the light of subsequent events.¹⁶

In cases where the trust instrument gives the trustees full power to make investments and to make exchanges in the manner which seems most expedient to them, there is still an obligation on the trustees to use reasonable discretion in making their investments.¹⁷

In states which do not have statutory legislation specifying trust investments, somewhat wider latitude exists in respect to what constitutes satisfactory securities for the trust fund. Thus, in Massachusetts, trustees may invest in the stocks of good business corporations, such as banks, railroads, manufacturing, and insurance companies; in notes of individuals secured by the stock of such companies; and in certificates of deposit of good banks.¹⁸ As a general rule, trustees should not invest in second mortgages; but under some circumstances such investments may be acceptable.¹⁹ Since the trustee becomes personally liable for "imprudent" investments, as that term is defined in a given state, he should conform strictly to the statutory requirements. In the absence of such specific restrictions, he will inform himself of the

¹⁵ Dickenson's Appeal, 152 Mass. 184, 187.

¹⁶ Pine v. White, 175 Mass. 585; Taft v. Smith, 186 Mass. 31.

¹⁷ Taft v. Smith, 186 Mass. 31.

¹⁸ Harvard College v. Amory, 26 Mass. 446.

¹⁹ Taft v. Smith, 186 Mass. 31.

attitude reflected in the decisions of the courts under whose jurisdiction he comes. In case of doubt, it is customary to follow the strict standards as set by a state such as New York. Such a standard would bar common stocks, and therefore the creator of a trust who is desirous of including common stocks in the trust fund, for such reasons as have been mentioned above, should specifically empower his trustee to draw up the trust agreement and should have an understanding with him that the power so granted is not an empty formality.

Life tenant and remainderman trusts. The nature of the beneficial interests of the trust will determine to some extent the types of investments to be purchased. For example, a trust may be established for the purpose of paying an income to a minor during his minority, the trust being brought to an end by turning over the principal sum of the fund to the beneficiary when he becomes of age; or for the purpose of paying the income to a given person during his life, and at his death to end the trust by paying over the principal to a person designated. In the latter case, the person entitled to the income is known as a "life tenant," and the person entitled to the principal of the fund at the death of the life tenant is called the "remainderman." Where such a situation exists, the trustee is charged with providing a maximum current income for the life tenant, consistent with the safety of the principal. Securities must then be purchased solely for income and not with the idea of effecting *appreciation* in principal. In the case of such trusts, it is especially important to distinguish between income and principal when purchasing bonds at a premium or at a discount.²⁰

The extent to which the trustee may enter the field of second-grade securities in an effort to enhance investment income is another question that is frequently raised. In certain cases there is an urgent need for producing from a given sum more income than can be derived from high-grade bond investments. Should the administrator or trustee then purchase less secure bonds or preferred stocks? The author's experience in administering trust funds leads to the definite conclusion that nothing but the best secured issues should be purchased. Except in cases where a

²⁰In estate accounting, the books may be kept on an accrual basis. Where this is done, income is adjusted to include the annual appreciation or depreciation on discount or premium bonds resulting from the approach of a maturity date. Income is credited in the case of discount bonds, or charged in the case of premium bonds, with an amount each year sufficient to amortize the entire premium or discount at the maturity of the bond. See Chapter 27.

certain portion of the trust funds may properly be allocated to stocks, the trustee should make every endeavor to preserve principal. Any other policy carries with it the danger of unwarranted principal losses. In fact it is only by the most careful administration that losses can be avoided year in and year out even in the highest grade of securities.

Provided that the fund is large enough to allow adequate diversification and legal permission is present either through the law or through specific authorization from the creator of the trust, there is the same reason for allocating a portion of the funds of a given trust to common stocks as existed in the case of the individual investor. The beneficiaries of a trust fund are no less affected by fluctuations in the general level of prices than is the individual investor, and may, in fact, be more so. The business man has other sources of income which vary with prices. His salary or his profits increase with rising prices. The beneficiary of a trust fund invested entirely in bonds, on the other hand, may have no means of offsetting the decline in purchasing power which occurs in respect to his or her income at such times. The proportion of the total fund to be allocated to common stocks will probably be somewhat smaller than in the case of the individual, the amount suggested being between 25 and 30 per cent at most. Furthermore, the greatest care should be exercised in the selection of such stocks; commitments should be confined entirely to the leading companies in the most stable fields of industry. Public utility operating companies, a few of the railroads, and certain industrial lines are regarded with the most favor. Because such holdings are especially designed to adjust income to a rising price level, industrials, despite their risks, have an advantage over the regulated utilities and railroads. Consequently, the reduced income from common stocks held during the adverse periods must be viewed as the price of this kind of insurance, purchasing power being safeguarded in such periods by bond income. Where immediate income is not of paramount consideration, high-grade bank and insurance company stocks should make up a substantial portion of such investments. But, where present income is more desirable than future appreciation, stocks should be purchased primarily for their current yield. Earnings should be regarded as a protection to the current dividend rate and not as a factor in building up future values.

Policies governing administration of insurance company investments. The investment officer of a life insurance company

is confronted with problems somewhat different from those of the private investor. The obligations of insurance companies are always in terms of dollars. Contracts are entered into which call for the future payment of definite sums of money, regardless of fluctuations in the price level. The insurance company, therefore, is not required to protect itself against rising prices by the purchase of stocks. The preferred stock holdings of leading life insurance companies are very small, and the common stock held is negligible, save in the case of the Sun Life Assurance Company of Canada.²¹

On the other hand, the nature of the insurance business gives rise to other interesting investment problems. In this connection let us consider briefly the operations of a life insurance company. Reduced to its simplest terms, the essential business of such companies is to enter into contracts with individuals which provide for the payment of a specified sum at death, in return for which the insured pays an annual premium. The determination of the premium in a given case is based on certain actuarial formulas. The two major factors are the mortality table which indicates the life expectancy of groups of people of various ages and of either sex, and the assumption that all premiums received will be invested until the death of the insured, at an assumed rate of interest.

If the mortality table accurately measures the life expectancy of a large group of people, and if the officers are able to invest the reserve funds of the company at the rate assumed by the actuary, then the company's premium income, plus investment income, will equal death claims over a period of years.²² The management of progressive companies, however, is not content with the so-called actuarial rate of interest, which is usually set at 3 or 3½ per cent. There is a strong motive for actually investing the company's reserves at a higher rate than this, for in this way larger earnings are available for the stockholders, and dividends may also be paid to the policyholders. The payment of such dividends to policyholders, of course, reduces their insurance cost, so that the companies which pay the largest dividends tend to do the largest amount of business.

²¹ A study of the holdings of this company, as given in the annual *Reports of the Superintendent of Insurance of the Dominion of Canada*, illustrates the difficulties of selecting uniformly high-grade common stocks even where investment, rather than speculative, merit has been the guiding principle.

²² For the sake of simplicity, we have ignored the normal expenses of doing business, which must also be included in the formulas.

The obligations of a life company consist of the contingent liabilities under its policies, to pay death losses as they occur, and the legal liability for accumulated reserve, as required by law, which constitutes the basis for the cash surrender value. The latter obligation is measured and carried on the books of the company under the heading "Net Reserves." The actual payments that will have to be made in any one year, however, will be determined largely by the number of policyholders who die. Since the amount of such payments likely to fall in any year can be measured with reasonable accuracy on account of the large number of policyholders, it is not difficult to determine what portion of the company's assets should be in liquid form, and how the maturities of its investments should be arranged. The chief uncertainty arises from variations in the demands for cash surrender values by needy policyholders. This demand mounts in times of crisis and depression but has been met in the past, with few exceptions, by the excess of receipts over disbursements or a relatively small amount of liquidation of securities.

A study of the classes of investments held by some of the larger companies will show that they fall into four distinct groups: (1) bonds, both corporate and civil; (2) mortgages on real estate; (3) real estate; and (4) stocks, preferred and common. The bulk of the investments held is ordinarily in the first two classes. The popularity of the real estate first mortgage is due, in part, to the relatively higher yield on such investments, and, in part, to the desirability of distributing funds geographically in a way that will increase the goodwill of the company.²³ The experience of insurance companies with mortgage investments during the recent depression, however, has clearly indicated the necessity for conservative appraisals and for the selection of states where laws relating to foreclosure are favorable to the mortgagee.

Investment policies of fire insurance company. The fire insurance company operates under somewhat different principles. The losses of such companies are predetermined by experience tables, to be sure; but their contracts expire after a definite, and relatively short, period. The liability of a fire insurance com-

²³ Many states regulate the investments of insurance companies doing business within their borders. The New York Insurance Law may be studied as illustrative of practice by a leading insurance jurisdiction.

The table and discussion (see page 33) indicate clearly the recent tendencies in life insurance investing. It has been noted that the movement is distinctly away from stocks and toward real estate mortgages and bonds.

pany at any time is found by prorating the total premium over the life of the policy and setting up as liability for unearned premiums the fraction of the premium attributable to the unexpired life of the contract. In addition to the investment of these unearned premiums, there is the substantial sum contributed by the stockholders as capital and surplus to provide a margin of protection. Because of the need for ready marketability, investments have been generally confined to bonds and stocks, while mortgages and real estate have been avoided. This precaution is desirable in order to meet variations in the loss ratio, especially such emergency losses as follow a large conflagration or community disaster, of which the San Francisco earthquake is an example. Some companies have confined their portfolios largely to bonds, which have the advantage of a more fixed market value—an important consideration so far as the fixed liability for prepaid premiums is concerned. Fluctuations in the prices of stocks are a less serious threat to solvency when they are confined to the funds contributed by the insurance companies' stockholders.

Savings bank investments. Investment problems confronting the savings banks likewise relate to the nature of their business. Since these institutions are almost all mutual, their entire obligations, save for a small surplus, are dollar liabilities to depositors. The situation calls for commitments in credit instruments. Their investments are likewise regulated by law, because of the fiduciary relations they enjoy with their depositors. It is necessary for savings banks to maintain a portion of their funds in liquid form in order to meet the demands of depositors for withdrawals, but only a small part of their funds is so required. The bulk of their investments are logically found among long-term securities—bonds and mortgages.

Local real estate mortgages, if conservatively selected, are especially satisfactory as a type of investment for savings banks. The lack of marketability characteristic of the real estate mortgage is no drawback to the savings bank, for it is not required to carry its investments in liquid form. The matter of yield far outweighs that of marketability, for the obvious reason that depositors do not make heavy and unexpected withdrawals from savings banks. The nature of a savings deposit precludes such a course, and, also, the law customarily gives the savings bank from 60 to 90 days, if it chooses, to pay the depositor. Its obligations are in no sense demand obligations. Furthermore, lending money on real estate mortgage is a service which the savings bank

should logically render to the community, particularly to its own depositors.

The yield on high-grade real estate loans, more particularly on home loans, ordinarily exceeds the yield on high-grade bonds by about 1 per cent. The difference here is not occasioned by lack of security, but rather by the cost of handling such loans. There is a special technique involved in handling real estate mortgages, which requires careful and frequent appraisals, proper title examinations, a proper follow-up on insurance policies, and a clerical force for handling interest and principal payments. The average overhead cost for management on this type of investment is about one half of 1 per cent, where the amount invested exceeds a million dollars. If this is deducted from the usual rate, which would be from 4 to $5\frac{1}{2}$ per cent, the net return would amount to from $3\frac{1}{2}$ to 5 per cent, as against 3 to $3\frac{1}{2}$ per cent on other classes of legal investments.²⁴

Commercial bank investments. In economic theory, the commercial bank has been regarded as an institution accepting the demand deposits of the community and investing them in short-term advances for the purpose of financing the current assets of business. Since the operations involving these assets normally lead to the receipt of cash within a short period, they have been felt to be a peculiarly appropriate basis for commercial bank lending, because such loans could be contracted and liquidated in the event of heavy withdrawals either from the individual bank or the banking system. The Federal Reserve System, with its central reservoirs of credit for the rediscounting of commercial and short-term agricultural loans, was created to remedy the weak spot in this situation. By providing a market for such paper, sudden strains upon the banks could be met until the credit represented by the paper was liquidated.

This simplified picture of commercial banking has failed to reflect the actual banking situation since 1920, for three main reasons:

1. *A relative reduction in the demand for commercial loans.* After the crash of 1920, business concerns began to feel more acutely the risks incurred in the use of temporary bank credit. In the decade which followed, the market for industrial securities became so favorable that the larger corporations found it possible

²⁴ For a more detailed discussion of this type of investment, see Chapter 22. Overhead costs will run higher on loans repaid monthly.

to acquire permanent funds that were not subject to the hazard of sudden withdrawal by the banks.

2. *An expansion of both the direct and indirect demand for long-term credits.* In the same period, the increasing demand for collateral loans to carry bonds and stocks constituted an indirect use of bank credit for long-term or "fixed capital" purposes. Banks also found and used the opportunity to make increased commitments in mortgages on real estate and in bonds—that is, direct long-term credits. This latter development has been severely criticized by those who have cherished the orthodox economic picture of commercial banking without any consideration for the third change.

3. *The rapid development of interest-bearing time, or "savings," deposits.* By arguing that these deposits were of the same character as those of the mutual savings banks, it seemed not illogical to the banker to invest them in a more permanent form. The more rapid increase in time deposits following 1920 was, as a result, paralleled by the increase in bond investments.²⁵ In the critical years between 1929 and the banking moratorium of 1933, bankers found that these deposits were subject to heavy withdrawal to the same extent as their demand deposits. This was not the experience of the mutual savings banks, however. Any attempt to check withdrawals by requiring advance notice from these time depositors proved impractical because of the fear it generated and the consequent bad effect on demand deposits.

Some responsible students argue for the complete separation of the two types of banking. Until that ideal has been achieved, any investment policy must be framed to recognize the factors just cited. Conservative judgment would counsel complete liquidity for funds held against demand deposits and, if not complete liquidity, at least a large measure of marketability for funds held against savings deposits. Applying this general rule, it is clear that the commercial paper eligible for rediscount with the Federal Reserve banks would still be the most attractive form of asset to the extent that it could be obtained. Whatever may be the theoretical objections, the collateral loan, when suitably margined with securities of satisfactory quality, will also rank high from the bankers' point of view. The safety record of such

²⁵ See Figure 11, showing deposits and earning assets of national banks in classified form for the years 1920-1932, Guthmann, H. G., *Analysis of Financial Statements* (New York: Prentice-Hall, Inc., rev. ed., 1935), p. 467.

loans, which have involved well-known listed securities, has been extremely good. Their chief demerit lies in the strain which the forced liquidation of such loans may place upon the security markets and, conversely, in the fact that the opportunity for the inflation of security prices may be made easier through bank credit expansion.

Bonds of good quality may be readily marketable, but they are subject to considerable price fluctuation, even the choicest issues, such as the United States Treasury bonds. If true liquidity—that is, ability to recover principal quickly without loss—is sought, only marketable issues of prime quality with a short maturity, presumably not over three years, should be selected. The fluctuations of even high-grade, long-term bonds under the trying conditions of 1931–1933, explain the extreme favor accorded to short-term United States obligations since then, as well as to prime short-term corporate issues. Recently high bond prices and fear of reaction have been an influence in the same direction.

As regards the real estate mortgage, many conservative commercial bankers believe that it should be avoided even by the bank with time deposits, except possibly in limited amounts and where the loan is small enough so that it may be retired out of the borrower's income without refunding over a period of from one to three years. Others feel that the danger of runs has been so diminished by Federal Deposit Insurance that a more liberal position can be adopted with safety. Under the Banking Act of 1935, national banks are permitted to lend on first mortgages up to 50 per cent of the appraised value of farm land and improved business and residential properties, and for a term not longer than five years. If sufficient installment payments are arranged to retire 40 per cent of the loan during its life, the amount can be increased up to 60 per cent of the appraised value, and the term increased to not more than ten years. These restrictions do not apply, however, for insured loans made under the provisions of Title II of the National Housing Act. To be insured under the act, real estate loans may run to 80 or 90 per cent of the appraised value, and, while amortization is compulsory on a monthly installment plan, the period of repayment may be as long as twenty-five years. The aggregate of real estate loans permitted a national bank is an amount equal to its capital stock and surplus, or 60 per cent of its time and savings deposits, whichever is greater. Should a suitable rediscount market for mortgages be developed by Federal agencies, the desire for the higher

yield to be obtained from such loans will tend strongly to encourage their expansion.

Any attempt to set up an ideal for the apportionment of a bank's fund would be justly subject to the criticism that a bank must vary its program to meet local and seasonal influences affecting its deposits. Among the more important factors involving the seasonal changes in deposits and bank loans are the following: the seasonal nature of local industries; local customs in respect to payroll disbursements; the size of the community; and the composition of the bank's accounts.

Furthermore, banks are limited in making both commercial and collateral loans to the demands of borrowers. The influence they can exercise through changes in the discount rate is limited. They have to invest in what is available. In the bond market, the situation is somewhat different, because banks are but one factor in the supply of funds. Life insurance companies, savings banks, and individuals are also to be considered. Consequently, the bonds held by the banking system may be increased or decreased by the shifting between these different classes of institutions. The treatment of limitations upon the policy of banks and the possibility of using the bond investment backlog in a semi-speculative fashion to take advantage of changing interest rates is deferred to the discussion of the business cycle.²⁶

Further consideration of matters of general policy: diversification. The necessity for establishing an investment program as the first step in the investing process is no doubt well established in the reader's mind by this time. The selection of conservative securities is surely one of the important functions to be assumed by the investor, but until a program has been determined which provides for the right types of investments, his task of selection is far more difficult and may lead to unsatisfactory results. Our discussion up to this point has dealt with well-defined types of investment funds, or investors, for the purpose of illustrating some of the important questions that arise in respect to the matter of policy determination. There are still other matters, general in their application, yet of sufficient importance to warrant special consideration. The first of these pertains to the matter of diversity. The proper diversification of investments is a first prerequisite, quite regardless of the nature of the funds to be invested. Rules for diversification, therefore, are of general

²⁶ See Chapter 30.

application, and for this reason have been neglected in our discussion of specific types of funds. We speak of rules of diversification and imply thereby the existence of several different kinds of diversification, as contrasted with the simple notion that one has gone far enough if he has included the obligations of several different companies in his portfolio.

The old proverb that cautions one not to put all his eggs into one basket carries a valuable lesson for the investor, despite the contrary opinion held by one of our leading financiers. Andrew Carnegie is reputed to have reversed the famous adage and to have advised a young friend of his "to put all his eggs in one basket, but to watch the basket." No doubt there is an element of truth in what he said, but scientific investing requires the practice of the best ideas in both theories. Diversification should be sought, but not at the expense of watching the basket. Commitments should not be so widely spread that the investor is unable to watch his investments, yet an undue risk is assumed if too large a portion of one's funds is committed to one enterprise.

The simplest type of diversification, as already suggested, requires that one spread his funds over several enterprises. It is not sufficient, however, to diversify among enterprises all in the same field. Thirty-five years ago traction securities as a class were in high favor among investors. Fundamental changes have occurred in the industry, however, affecting adversely all traction securities.²⁷ The investor, therefore, who diversified only among tractions some years ago would have suffered heavily, while another who spread his commitments among both traction and electric light and power companies would have protected himself in part against fundamental changes for the worse in either industry. While the securities of the former companies have declined in value, there has been a marked improvement in the investment status of the latter. Consequently, it is a principle of first importance in the investment of funds that diversity should be sought in respect to industries as well as enterprises.

Geographical diversification. In large funds, geographical diversification should also be sought. Insurance companies, in making mortgage loans, assign a certain portion of their funds

²⁷ Important capital losses in this industry began to be severe between 1915 and 1919. During this period 797 miles of track were sold as junk, while 257 miles had been abandoned. Some of this abandoned mileage was later reclaimed, but a large part has never been recovered. See *Proceedings of the Federal Electric Railways Commission*, 1920, pp. 87, 88. Abandonments and scrapping continued after this period.

to each of the various states of the Union. Thus do they avoid the danger of substantial losses from local depressions or from shrinkages in values due to fundamental changes in the economic development of a particular territory or region which is tied up with a single industry, or from physical disasters, such as earthquakes or floods. The same policy is adopted by certain large investors who purchase municipal bonds.

Sometimes, geographical diversification is carried further and the securities of foreign countries are included. One of the large investment trusts operating in this country seeks investment in all the principal countries of the world. From studies that this trust has made, it appears that prices of securities are always rising on some of the exchanges of the world, and falling on others. The aim of this trust is to sell in those markets where the averages appear to have reached the top, and to buy in those markets that are recovering from depressions. Geographical diversification is here carried far beyond the limits which the average investor can accomplish.

Diversification as to maturity dates. Diversification according to maturity date is still another method of insuring against undue losses. As previously noted, the prices of high-grade bonds vary inversely with interest rates. That is, high interest rates are accompanied by high bond yields, or low bond prices. Conversely, low interest rates are accompanied by low yields and high prices. Let us suppose, now, that a large proportion of the investments of a specific fund mature at a time when interest rates are extremely low. The reinvestment of such funds can be effected only on disadvantageous terms, because of the general market situation. A contingency such as this can be guarded against, however, by purchasing bonds with varying maturity dates.

The easiest way in which to effect diversity of this type is to set an arbitrary period within which all maturities shall fall. This period may be twenty years, or longer, if desirable. All new purchases are then confined to bonds maturing within this period, and are so arranged that approximately an equal amount mature each year. In this way the investor is able to command the average interest rate in effect during the period selected. A period of twenty years is suggested because this is sufficiently long to provide for at least one long swing in the cycle of business conditions. The determination of the period, however, is less important than the exercise of selection in maturity dates.

The problem of maturities is sometimes governed by other factors. The investment of life insurance represents premiums collected in advance. On account of the actuarial basis on which risks are assumed, the company can predict with some accuracy the amount of the payments it will be required to meet each year, on the basis of policies in force at any given time. The maturity of life insurance investments, therefore, should be so selected as to provide the company with the necessary funds to enable principal payments to be made on its policies. A great majority of the contracts of life insurance companies run for relatively long periods, and for this reason long-term bonds are generally purchased by such companies in preference to short-term bonds or notes.

In other situations, it may be desirable to have part or all of a fund invested in short-term bonds in order to provide liquidity. This applies particularly to the investments of business concerns whose surplus funds are temporarily invested outside of their own businesses. For individuals, likewise, it is desirable to maintain some funds in liquid form in order to meet exigencies as they arise. At death, liquid funds are especially necessary to meet estate taxes and administration expenses. Other reasons for carrying some short-term investments have already been considered.

Tax-exempt versus taxable securities. Whether the purchase of tax-exempt securities is desirable, and, if so, the extent to which such securities should be purchased in proportion to taxable securities, usually are matters to be settled by reference to the size of the fund to be invested and the total income of the beneficiary.

Some bonds contain a clause whereby the issuing company contracts to pay the normal income tax "not in excess of 2 per cent" on the taxable income received therefrom, and in rare instances the payment has been as high as 4 per cent. This agreement, however, carries little benefit to the taxpayer whose income is subject to the heavy surtaxes that have been in force since the first World War.

Certain Federal, state, and municipal obligations are totally exempt from Federal income taxes. Bonds and notes of the Federal land banks, intermediate credit banks, joint-stock land banks, and territories of the United States, all of which are regarded as instrumentalities of the Federal Government, are similarly exempt. In fact, these latter obligations, as well as direct

obligations of our Federal Government, are further exempt from local taxes, such as the income tax in Massachusetts and New York, the so-called four mill tax in Rhode Island, and like taxes in other states where such taxes on intangibles are in force.

Beyond the limits suggested, however, the income from the bonds and stocks of ordinary corporations is taxable under the Federal income tax law and under state income tax laws where such apply. Furthermore, the rates at which the tax is computed increase as the size of the income increases. It is apparent, therefore, that tax-exempt securities are especially attractive to large investors.²⁸

Marketability. In our analysis of the problems confronting special types of investors, reference was made to the question of marketability, or liquidity. There is a distinction between investment in marketable securities and short-term or liquid investments. The latter type of investment implies that the principal sum will be payable within a short period of time. The purchase of marketable securities is made where there is a reasonable chance that it may be necessary to raise cash at some future time, but where there is no definite date at which such cash may be needed. Commercial banks confine their security purchases largely to marketable issues in order to be in a position to raise cash if occasion should arise. The investment of temporary surpluses of business concerns should likewise be confined to marketable issues, particularly short-term issues, if cash may be needed shortly. Savings banks confine a large portion of their investments to long-term issues and first mortgages on improved real estate which lack marketability, yet they do carry sufficient marketable securities to provide against emergencies. The policy to be adopted in respect to the investment of personal funds or trust estates will depend upon the circumstances of the case. Business men frequently find it desirable to keep part of their funds in marketable securities, if only to have available good collateral against which they may borrow. Banks will loan considerably more on marketable securities than they will on those lacking a ready market.

The marketability of an issue, as a general rule, depends on its size, whether it is listed, and the reputation of the issuing company, although the channels through which it was originally sold must also be considered. A small issue, brought out by a little-known banking house and placed among a narrow group

²⁸See also Chapter 29.

of investors, will naturally have a very limited market. On the other hand, a sizable issue, handled by a syndicate of well-known bankers will be widely traded in even if it is not listed.²⁹

In corporate finance the term "marketability" is relative. Almost any security can be sold at a price, but when the investor considers marketability, he pictures a security which can quickly be disposed of at the prevailing market price. The spread between the bid and the asked price of listed securities which are actively traded in is usually very small—between 1/8 and 1/4 of a point. The spread is even less for obligations of the United States, sometimes falling as low as 1/16, or even 1/32 of a point for the more active short-term issues. For inactive securities, in which some over-the-counter trading is done, the spread may be between 1 and 2 points, whereas in the case of securities which are traded in infrequently, the spread may be as great as 10 points. The following quotations will indicate this situation:

QUOTATIONS, ABOUT AUGUST 31, 1940

<i>Security</i>	<i>Bid</i>	<i>Asked</i>	
U. S. Treasury 2½'s, 1951-53....	108½	108¾	Listed N. Y. Stock Exchange
American Telephone & Telegraph Debenture 3½'s, 1961.....	109	109½	Listed N. Y. Stock Exchange
Cities Service Co. Debenture 5's, 1963.....	77½	79½	Unlisted
Denver & Salt Lake Income Mort- gage 6's, 1960.....	61	62½	Unlisted

Source: *Bank & Quotation Record*, September 5, 1940.

Another factor which narrows the margin between the bid and the asked price of bonds is the effect of redemption. Where an issue is being gradually retired through the operation of a sinking fund, the market is usually maintained close to the call or redemption price. There are two reasons for this. (1) The demand created by the sinking funds for bonds is usually sufficient

²⁹ An excellent source of information relative to the market on unlisted securities is the weekly stock and bond offering services of Standard Statistics Company. These services summarize the bid and asked prices on a wide range of securities throughout the United States. Data are made available weekly and are cumulated monthly and annually. For daily fluctuations in the bid and asked prices of this type of security, the *National Daily Quotation Service* is available. If information is sought for only the more active over-the-counter securities, the *Commercial and Financial Chronicle* will generally be sufficient. The publishers of the latter periodical also prepare the monthly *Bank and Quotation Record*, which contains market quotations on a wide range of listed and unlisted securities. (This publication was the Bank and Quotation Section of the *Commercial and Financial Chronicle* prior to March, 1928.) Another monthly source is *Moody's Bond Ratings with Quotations*.

to absorb most of the bonds that come on the market. (2) Bonds which originally went into weak hands, so to speak, are lifted off the market soon after the redemption begins, thus leaving only those bonds that are held by investors who have no strong reasons for selling. Securities whose market is limited invariably sell at a somewhat lower price than equally well-secured issues with a ready market, and, hence, enable one to secure a somewhat higher yield, where marketability is not a prerequisite.

Sound investments versus speculative commitments. As already suggested, the degree of risk that may be tolerated in an investment program will depend largely on the position of the investor. Large investment profits are made, not in high-grade bonds, but through the purchase of common stocks, or preferred stocks and bonds whose present position offers opportunity for substantial improvement. New York, New Haven & Hartford convertible debenture 6's, due in 1948, sold as low as 51½ in 1921. By 1930, however, they had risen to approximately 135. While they still offered at that time an opportunity for further profit through the conversion privilege, the real profit was realized by those who purchased these bonds in 1921 when the road was in poor financial condition, was showing a heavy deficit, and consequently was not considered a good credit risk. Those who purchased in 1921 were for the most part investors in a position to study the situation and to foresee future events. Purchasers should have been those who were in a position to accept a temporary loss or a total loss in case their judgment was wrong. Quite different would have been the position in 1921 of a widow whose sole income came from a \$50,000 fund. The investment of such a fund would require the most carefully selected issues, well secured by income and assets, and not requiring the constant attention necessary to protect investments in less conservative securities.

In other words, investors who are in constant touch with the market, whose judgment enables a selection of securities where risk is overemphasized in current quotations, and who can afford to suffer occasional losses, may well use part of their funds in purchasing new and unsecured issues, common stocks, or the securities of companies whose condition is weak, but whose prospects are good. They will be rewarded in so doing in proportion to their skill in analyzing accurately all the elements of the situation, but they will be penalized for their errors in judgment.

Summary. In the present chapter we have focused attention on some of the more general aspects of the investment problem which must be considered by the individual investor before he can proceed with the actual selection of securities. What would be a reasonable and proper investment for one person would be highly undesirable for another. Private investors as well as institutions, therefore, should first study the types of securities which best fit their needs and confine their selections to these types.

In determining the question of policies, we find that a number of general factors must be weighed. Proper diversity, in respect to businesses, industries, maturity dates, and types of securities, is of prime consideration and must be provided for at all costs. The extent to which present income is desirable as opposed to deferred income is also a matter of policy. Some investors use discount bonds as a means of capital accumulation, whereas others are content to buy either discount or premium bonds. It is also a matter of importance to determine when it becomes profitable to purchase tax-exempt bonds. The current rates at which incomes are taxed and the spread between the yield on tax-exempt as compared with taxable securities enter into this problem. Another matter to be decided is the extent to which marketability or liquidity is desirable. And, finally, how skilled is the investor in analysis, how far can he rely on his judgment, and to what extent does he feel it proper, in an effort to profit through market appreciation, to purchase securities which are somewhat below the highest-grade, seasoned securities in quality? These are all matters that require attention in the formation of an investment program.

Part II

Securities: Classification and Analysis of Contractual Features

6

Classification of Securities

Reasons for lack of standardization in security issues. The student who approaches the science of investment for the first time is at once impressed with the apparent lack of standardization in types of securities. Not only is the number of different securities currently traded in very large, but there is a wide variety in the manner in which these securities permit the holders thereof to participate in the income and assets of the borrowing unit, as well as a similar variation in the extent to which control is permitted in the affairs of the corporation. It follows, as a result of this situation, that the risk elements attached to various types of securities differ fundamentally. In view of this confusing situation, it is difficult to undertake a detailed analysis of the field without first developing satisfactory methods of classification and considering in a general way nomenclature ordinarily employed when discussing stocks, bonds, and notes. This will be the function of the present chapter.

The first step in this process will be to consider the basic reasons why the market is willing to absorb an increasing variety of securities. The reaction of different investors to the more important characteristics of investments will be analyzed briefly. Consideration will next be given to the principal sources from which investment securities emanate. Subsequently, several fundamental bases according to which the more important kinds of stocks, bonds, and notes may be classified will be discussed.

Reasons for different kinds of securities. The reason why there is a lack of standardization in the investment field is two-

fold. In the first place, the status of corporations and other borrowers of money varies in respect to credit, financial position, character of business, and banking affiliations. Borrowers, who are the issuers of securities, will naturally adopt those instruments which are best suited to their particular requirements. On the other hand, the needs of investors are not all alike. In analyzing the demand for securities it is convenient to consider some of the qualities of various securities and the reaction of different investors thereto. The primary qualities of a security may conveniently be discussed under three headings: income, risk, and control.

Subjective characteristics of investments: income and risk. One of the first requirements of any investor when making a commitment is income. The amount of income which can be obtained in the investing process, however, depends in part on the amount of risk the investor is willing to take. The person who seeks entirely to eliminate risk, and who is content to receive a return commensurate with the going rate of interest, looks for such investments among high-grade, well-secured bonds. The return on such securities is fixed—the borrower promises to pay a fixed rate of interest irrespective of business conditions or profits. Principal is also well protected by assets, which may be pledged as security under a mortgage.

There are other investors willing to assume moderate risks in an effort to raise their return. Nevertheless, they also require in the investment contract the promise of a definite and fixed income and the return of their principal sum at some future date. Such investments are still found in that class of securities known as bonds, although the security offered by the corporation in the form of earnings and assets is somewhat less than in the first case.

Contrasted with investors of the first type are those who are content to assume the maximum risks of the business, but who expect, in return, to receive such profits as may remain after all expenses and charges are met. These are the stockholders, or owners of the business. There is no limit to the return which the stockholders may receive on their investment other than the earning capacity of the business. On the other hand, there is no promise that they will receive any return, nor is there a promise to pay back at any future time the principal sum invested. It is true, however, that, even in the case of stocks, devices are often employed to divide profits in such a way as to assure a steady but constant return to a preferred group, and to

allocate the remaining profits to the common stockholder, whose income is characterized by wide fluctuations when compared with that received by the other interests in the concern.

What has just been said may be pictured graphically somewhat as follows:

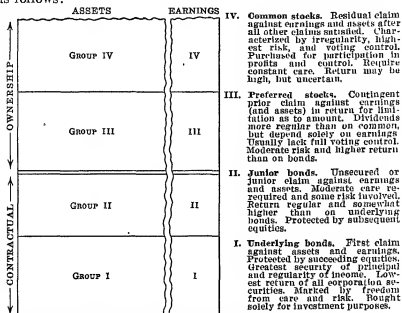


Figure 7—Chart Showing Priorities of Various Securities of a Corporation in Respect to Claim Against Income and Assets and Relative Order of Risks.

The purpose of Figure 7 is merely to indicate the manner in which a corporation may devise means of financing which appeal to the varied requirements of investors in respect to income and risk. The rate of return promised to investors who insist on the first claim is the lowest, but the best secured. Those who require less security and who are willing to accept a position subordinate to Group I are entitled to a somewhat higher return on their funds. Nevertheless, investors in both these groups are relieved so far as possible from all uncertainty regarding the amount of income they will receive, in that they have committed their funds to the enterprise only on the basis of a definite contract. In this contract the corporation promises to pay not only a specified annual return, but also the principal sum, at a stated time. Above the

double line are indicated the claims of the stockholders. The nature of their claims differs fundamentally from that of the bondholders in that it represents a participation in profits. If profits are large, their return is large; if small, their return is small. In fact, the stockholders may not receive any return at all if earnings do not justify the payment of dividends. Even in the case of stockholders a distinction is often made in the matter of risk and income. In order to meet the requirements of those who prefer to receive a constant income rather than take a chance on receiving large profits during good years and low profits during poor years, a preference may be established among the owners of the corporation. By issuing preferred shares to which a prior claim on *profits* is allocated, there is a reduction in risk. On the other hand, except in certain cases, this is accompanied by a restriction on dividends to a stated amount, as well as a restriction on participation in assets in case of dissolution. Moreover, the payment of preferred stock dividends depends not upon contract but upon the action of the directors.

Control. Closely related to the matter of income and risk is the entire question of control. The extent to which investors in Groups I and II are permitted to share in the management of the corporation is naturally very limited. In fact, bondholders are rarely given any voting control except under special conditions. Not only is this situation logical, in view of the relations between borrower and creditor, but it is desired by a certain group of investors. With control goes all the attendant care and responsibility which many investors seek to avoid. The bondholder is purely a capitalist, in the economic sense, and is in no way an *entrepreneur*. His essential function consists of committing capital to the management of others. As a practical matter the same situation applies, as a rule, to the preferred stockholder, although there are exceptions. The investor who seeks control ordinarily does so by the purchase of common stock.

Marketability. The three subjective qualities of investments which we have just discussed under the headings *income*, *risk*, and *control*, are basic. There remain certain secondary qualities for brief discussion. The first of these is marketability. Some investors require a ready market for their securities. In fact, all investors generally prefer to maintain a part of their holdings in securities that can quickly be disposed of at the prevailing market price. The marketability of a security depends on a number of different factors, such as the size and nature of the

issuing company, the method of flotation, and the place and frequency of sale.¹

Freedom from care. In much the same way that certain investors seek to avoid the responsibility of management, they seek to avoid the care and watching necessary to safeguard a fund invested in speculative issues. By referring to our diagram on page 123, it will be seen that the position of investors in Group I is protected by the succeeding equities of Groups II, III, and IV. Moderate fluctuations in business conditions and earnings are of little concern to the first mortgage bondholder. On the other hand, as we pass from Group I up to Group IV, we find not only that greater care is required in making original selections, but that the investor, once having made his commitment, must safeguard it by more carefully watching the operations of the issuing corporations. There is certainly a much greater need for careful supervision of a fund invested in common stocks than of one invested in well-secured bonds. And it is the extent to which a given investor is qualified, or has the inclination, to devote himself to supervision that will induce him to purchase the securities with high risks and opportunities for large income in contrast to low-risk and low-income investments.

Taxability. The question of taxability is a matter of concern to certain investors, particularly individuals with large incomes. The bonds of states and municipalities are totally exempt from the Federal income tax. Certain other bonds are also wholly or partially exempt from Federal or state income taxes. Individuals with incomes of sufficient size to be subject to the higher surtaxes may often find it profitable to buy tax-exempt securities, although their market yield is lower.²

Maturity. The maturity of an issue is also a factor that is often considered by the investor. Some investors prefer very short maturities, in order to maintain their funds in a liquid condition. Other investors require a diversification among the maturity dates of their investments in order to make sure of an approximately equal amount of maturities each year, while still other investors prefer long maturities in order to avoid the necessity of frequent reinvestment. These varied requirements make it possible to market issues with a wide variety of maturity dates.³

¹ For further discussion of marketability, see p. 115.

² For a more detailed discussion of tax-exempt securities, see Chapter 29.

³ The diversification of maturity dates is discussed on p. 113.

Sources of investment securities: corporate financing. The principal investment securities in this country are the stocks and bonds of corporations. In fact, except for government issues, shortly to be discussed, the corporation is practically the sole primary issuer of securities in the accepted sense of the word. An exception to this statement is found in the case of "business or express trusts," which are organizations not unlike the corporation in many respects and which actually issue certificates of indebtedness and ownership in much the same way as corporations.⁴ The joint-stock form of organization, of which the Adams Express Company is an example, might conceivably be used in place of the corporation to carry on business enterprises and to issue transferable shares of stock. As a practical matter, however, it is rarely used in this country, on account of the unlimited liability attaching to the transferable shares.

The outstanding characteristic of securities issued by corporations and express trusts is that their return is normally dependent on the *productivity* of the enterprise. The value of the assets of a typical business enterprise is closely associated with actual or potential earning power; and both interest on bonds and dividends on stock depend on the earnings. The relatively few exceptions to this statement are found in bonds issued by incorporated charitable and religious organizations.

Governments as borrowers. The securities of governments—Federal, state, and municipal—are important and, while smaller than the total of all corporate securities, they now add to a total considerably larger than that of corporate debt issues or mortgage debt. The total amount of government issues in the United States has recently (1939) been estimated at about \$60,000,000,000, as compared with about \$35,000,000,000 of corporate bonds outstanding, and with about \$36,000,000,000 of urban and farm mortgage debt, while foreign government bonds and loans are estimated at approximately \$4,000,000,000.

In contrast with corporate securities, whose ultimate value depends on earnings, the income and ultimate return of principal in the case of government securities depend on taxing power and credit. The corollary to this situation is that funds secured by

⁴Examples of this form of organization are the American Optical Company, the International Paper and Power Company, and the Eastern Gas and Fuel Associates. For a complete discussion of this type of organization, see Gerstenberg, C. W., *Financial Organization and Management* (New York: Prentice-Hall, Inc., 2nd rev. ed., 1939), Chapter V.

corporations are supposedly employed for productive purposes, while funds borrowed by governments may or may not be used productively. However, it very frequently happens that governments use borrowed funds productively in the sense that private corporations use them.

Securities of financial institutions: holding companies. Financial institutions may be defined as companies whose main business consists of investing funds. Where the financial institution issues its own securities against its purchases of the securities of other corporations, the resulting supply may be considered secondary in nature. Thus, if a corporation is formed to purchase the stocks of corporations A and B, and issues its own stock to effect this purchase, there is no net change in the total supply of securities in the hands of the public. There is merely a substitution of one security for another. On the other hand, where the holding company carries on some business independently of that of holding the securities of other companies, or where there is a stepping up of capitalization, there will be a net increase in the supply of securities.

One of the most common types of financial institutions is the outright holding company. Such a corporation is formed solely to acquire and to control the stocks and bonds of other corporations. The holding company issues its own securities against assets, which consist mainly of the stocks and bonds of the underlying companies. The true type of holding company does not engage in operations on its own account, but purchases the securities of other corporations for the purpose of controlling the management of its subsidiaries.⁵ In this latter respect, it differs fundamentally from the investment company, which purchases solely for the purpose of investment, and is not interested in control.

Investment trusts. Another type of financial institution is the investment trust, or investment company. Such a corporation or trust is formed purely for investment purposes, and its essential function consists of the purchase and sale of stocks and bonds, and, in some cases, property. The company derives its income almost entirely from interest and dividends on the securities it holds; from syndicate profits, where it participates in syndicate underwriting; and from profits on the purchase and sale of se-

⁵ An analysis of the holding company as it operates in the public utility field is given in Chapter 16.

curities. It does not attempt to manage the companies whose securities it owns.⁶

Other types: banks and insurance companies. Commercial banks and insurance companies also must be classed as financial institutions. Where such enterprises are conducted under the corporate form of organization, they acquire their capital in much the same way as ordinary business corporations, except that, generally speaking, they are financed by the issue of only one type of security—common stock. While an essential part of the business of these institutions is that of investing, they perform collateral services as well. Furthermore, the nature of their business is such that they must be considered as primary creators of securities, in so far as their own stocks are concerned.

Classification of investment securities: common stocks. We are now prepared to take up several different methods by which investment securities may be classified. In this connection we shall give no detailed consideration to different types of securities, but merely a survey of the entire field. The balance of this chapter will be devoted to clarification rather than to explanation, and only such definitions will be given as are necessary. Subsequently, all the more important types of securities will be considered in detail and their characteristics more thoroughly discussed.

The first major division of securities is between those which represent ownership and those which are contractual. This distinction was clearly emphasized when we considered some of the subjective characteristics of securities in an earlier part of this chapter. Common stock represents control "par excellence," in that it generally has sole voting powers, except under certain conditions later to be discussed. Furthermore, it is subject to the highest investment risks of all the various securities of the corporation. On the other hand, common stock is entitled to all earnings and assets of the business after prior claims are satisfied.

Common stocks may be issued with a stated par value or with no par value. This distinction, however, is mechanical rather than fundamental, and does not affect, *per se*, the investment status of the issue. Of greater importance is the division of common stocks into nonvoting and voting (frequently designated as "Class A" and "Class B," respectively). Here, again, we get back to the question of control. Theoretically, all the common stockholders of a large corporation are entitled to vote at stock-

⁶ For a more detailed discussion of this type of institution, see Chapter 21.

holders' meetings. As a practical matter, many small holders never exercise this control. The former movement on the part of investment bankers to concentrate the voting control into a small number of shares designated as voting shares was not entirely illogical, although it had its disadvantages, as will be shown later.⁷

Preferred stocks. A certain class of investors is content to allow their participation in profits to be limited, in return for a prior claim thereto. Such investors, however, require a somewhat higher return than the bonds of a corporation afford and are willing to forego the security attached to a contractual instrument. To meet such requirements, the corporation may split its stock up into preferred and common.

As the name of the title suggests, preferred stocks enjoy certain priorities over other classes of stock. If no special reference is made to the specific nature of these priorities, the legal assumption is that the preference feature applies only to dividends. More commonly, however, there is a definite statement in the preferred stock contract, which gives this class of stock priority in respect to both assets and earnings. Except in the case of participating preferred stock, which will be defined shortly, the preferred stockholder is restricted in the amount of dividends he may receive as well as in the amount of assets to which he is entitled in cases of dissolution.

Preferred stocks: cumulative and noncumulative. A further classification of preferred stock is possible according to whether the dividends thereon are cumulative. Where cumulative, there is an agreement that the preferred stock shall receive the full amount of dividends for all years, both current and past, before any dividends can be paid on the common. If, for any reason, the corporation is required to omit dividends in any year, or is able to pay only a portion of the full dividend on the preferred stock, the amount so deferred accumulates and must be paid before any dividends may be paid on the common. Where the stock is noncumulative, the assumption is simply that the full preferred dividend must be paid in *any year* before any common dividends are allowable; but if only a part of the preferred dividend is paid, or if no dividends at all are paid during the year, there is no accumulation, and the preferred holder has suffered an irreparable loss.

While it is true that the corporation does not contract to pay back the principal sum indicated on the preferred stock certificate,

⁷ See p. 242.

nor promise or contract to pay a specified amount of dividend annually, there may be a variety of agreements between the corporation and the preferred stockholder regarding the setting up of sinking funds for redemption, the maintenance of a proper liquid position, the issue of prior obligations, and the prior right to a definite amount of assets in the event of liquidation.⁸

First and second preferred stocks. Preferred stocks may also be classified in order of their priorities. In the case of certain large companies, we may have a number of different kinds of preferred stocks, such as first preferred and second preferred, or prior preference (or "prior lien") and ordinary preferred. The distinction here is analogous in some respects to that found to exist between first and second mortgage bonds. The first preferred stock has a claim on current earnings and on assets in case of dissolution, preceding all other stocks. The second preferred comes next, and so on. Or, looked at in another way, junior preferred stock issues are subordinate to the first preferred in respect to dividends and assets.

Callable versus noncallable preferred stocks. Preferred stock may be callable or noncallable. The distinction here is much the same as in the case of bonds. Where a stock is callable, the corporation is given the privilege of retiring all or part of the issue at a specified price, usually in excess of par. Accumulated dividends, if any, must also be paid at this time. From the corporation's standpoint, the callable feature is advantageous, in that it provides a way for the common stockholders to eliminate all preferred stock, and thus to improve the capital structure of the corporation. From the stockholder's point of view the callable feature may or may not be desirable.

Participating preferred stocks. Participating preferred stock is distinguished from nonparticipating in that the former enjoys the right to participate in the earnings of a corporation over and above the specified dividend rate. This right, of course, is valuable from the stockholder's standpoint, but it reduces the amount of earnings which would otherwise accrue to the common stock. For this reason, corporations employ such stock only when their credit position requires a special inducement to obtain funds. The participating feature is the exception rather than the rule. An equivalent is the right to convert preferred stock into common, but in exercising this privilege, the preferred stockholder finds it necessary to give up his position to obtain the desired

⁸For a full discussion of these subjects see Chapter 10.

advantage of the common stock. A further analysis of these provisions will be given in Chapter 10.

Control; voting and nonvoting preferred stock. Customarily, voting control is denied the preferred stockholder, but not necessarily so. Thus, preferred stock may be voting or nonvoting. In some cases, limited voting rights are given to the preferred stockholders. From the investor's standpoint, it is logical that voting control should be concentrated in the hands of the common stockholder, for the preferred holder is accorded a relatively certain income in place of a fluctuating income, by virtue of his preferred position in respect to earnings. The same motives which lead him to choose this position will naturally lessen his desire to participate in the management of the enterprise. We may now summarize our classification of stocks somewhat as follows:

Common stocks:

With or without par value.

Voting or nonvoting (as, Class A nonvoting, Class B voting).

Preferred Stocks:

Preferred or not as to assets.

Cumulative or noncumulative.

First or second preferred.

Callable or noncallable.

Nonparticipating or participating.

Without or with conversion privilege.

Nonvoting or voting.

In the list of alternative forms of preferred stock, the more usual alternative is stated first in each case.

Contractual obligations more complex. The task of classifying the contractual obligations of corporations is much more complex than that of classifying ownership securities. A partial reason for this situation undoubtedly lies in the fact that an almost infinite variety of investment contracts is possible. In the case of ownership securities, it is possible, of course, to vary such matters as control, priorities in respect to dividends and assets, or the mechanical form which a particular issue will take. On the other hand, many of the features of credit or contractual obligations are lacking. Such matters as the problem of creating a mortgage on certain assets and determining the assets that can be pledged, the maturity of the bond issue, and methods of paying off the bonds are not involved in issuing stock as they are in issuing bonds. The more factors that enter into

the problem, the greater the opportunity for variation in the form in which the contract finally emerges.

Classification of bonds according to legal nature of security. The first basis for classifying bonds, and certainly one of the most important, is the legal nature of the claim which they have against assets and earnings of the borrowing unit. Here the major division is between unsecured and secured issues. An unsecured bond is simply the promise of the borrower to pay to a registered holder or to bearer a principal sum at a stated time and place, and also to pay a stated rate of interest on the principal until maturity. A secured bond, on the other hand, is a promise of the borrower to pay, as in the previous case, accompanied by a pledge of certain assets under some form of mortgage. If the borrower fails to live up to his agreement, complete title to these assets may be acquired by the bondholders through foreclosure proceedings.

Unsecured bonds. Federal or government bonds are generally unsecured, but not always. Smaller countries, whose credit is not of the highest, often pledge revenues from import and export taxes and other imposts as security for their debts.⁹ State bonds in this country are almost invariably unsecured. The obligations of political subdivisions, such as counties, special taxing districts, and cities and towns are also unsecured as a rule. Exceptions are the bonds issued to acquire and finance municipally operated public utilities, such as water works, electric lighting plants, and electric railways. These issues may, however, be secured by the pledge of the revenues of the utility instead of a mortgage on the property.¹⁰

Corporate issues. The bonds issued by business corporations and investment companies may be secured or unsecured, depending on the combination of factors present in a given case. Unsecured bonds of corporations are frequently spoken of as "debentures," although there are other types of unsecured issues. The term "note" is used to designate evidence of short-term borrowing. Notes are generally, although not necessarily, unsecured.¹¹ Receivers' or trustees' (in bankruptcy) certificates,

⁹ See Chapter 26 for a further study of loans so secured.

¹⁰ See Chapter 25 for a more detailed analysis of municipal issues.

¹¹ The distinction between notes and bonds is largely a matter of the time for which the issue is put out. Where the security has an original life of five years or less, the term "note" is generally used. Longer-term issues are called bonds. This distinction is only a matter of custom, however.

while they frequently rate ahead of all the bonds of a corporation, are rarely secured by a pledge of specific assets.

Bonds with general security. Sometimes the security behind a bond is partly physical and partly general. Where two or more corporations are merged, the absorbing company may assume the bonds of the acquired company. The old physical assets still serve as security for the bond, and so the bond has twofold security, when it becomes a general obligation of the new company. Where consolidation is effected by means of a lease of the property of another company, the lessee corporation may guarantee the bonds of the lessor company. The bond is then known as a "guaranteed bond." A lessee company may also guarantee the payment of dividends on the stock of the lessor company. The guarantee is provided for by arranging a sufficient rental under the terms of the lease to provide for expenses of the lessor company and a stated dividend on its stock. In such cases, the stock, to all intents and purposes, acquires most of the investment characteristics of a bond. The holder has a fixed contractual claim against the guarantor, and failure to pay constitutes a default.

Another form of guaranteed bonds is the "indorsed bond." Where several corporations engage in an enterprise coöperatively, they may borrow jointly, or else guarantee jointly the payment of the bonds of a subsidiary company formed for the purpose of holding the assets to be used in common. In such instances, the resulting issue is known as a "joint bond." All of these bonds, whether assumed, guaranteed, or indorsed by a corporation other than the issuing corporation, have only the strength of a general unsecured obligation with respect to this supplementary credit. They may, and frequently do, however, have mortgage security from the issuing corporation, so that they have double support and would fall under two headings in our classification.

Secured bonds. The straight first mortgage bond, as the name suggests, represents the clearest cut example of a secured bond. Such bonds are not merely based on a definite contract with the corporation, but are also secured by a first mortgage on specific tangible assets, such as the plant and equipment of the company. In the event of default, under the terms of the mortgage, title to the property may be acquired by the bondholders through foreclosure proceedings. Where the mortgage given as security is a second, or a third, instead of a first, mortgage, the bonds are known as second or third mortgage bonds.

Quite naturally, investors are less satisfied with the security

of a second or a third, than with that of a first, mortgage. It is, therefore, to the advantage of the corporation or investment banker responsible for selling the securities to avoid the use of the term "second mortgage" if possible. Some other title, such as "first and general mortgage bonds" may be used without violating the laws of veracity, yet such a term usually means that the issue is a first mortgage on a very small part of the corporation's property, and a general mortgage on the balance, subject to prior mortgages.

The term "first and refunding mortgage bonds" also implies that the bonds are secured by a first mortgage on some of the company's properties only. The essential purpose for which such bonds are issued, as the second part of the title implies, is to refund other issues of the corporation's bonds as they come due. The extent to which they become first mortgage bonds as a result of this financing will depend partly on the rights and security accorded the maturing or refunded bonds and partly on the contract provisions of the refunding issue itself. Were the title "first refunding" mortgage employed, the adjective "first" would apply to "refunding" not to "mortgage," and the lien would generally follow earlier mortgages in priority. There are other titles which are frequently applied to bonds, such as "prior lien," "refunding," or "blanket mortgage." The use of such terms often leaves the investor uninformed as to the real nature of the liens against the corporate property. The obvious conclusion to be drawn from our discussion up to this point is that the bond title may be misleading and fail to convey a real picture of the actual security going with a particular issue of bonds. Essential facts of this nature are contained in the bond indenture and not in the bond title.

"Divisional bonds" is the term often used when referring to bonds secured by a mortgage on a particular division of a railroad. The term "sectional bonds" is used with a somewhat similar meaning—bonds secured by a section of the road.

Real estate securities. In general, the term "real estate securities" is applied to bonds and stocks issued for the purpose of financing real estate transactions. Mortgage bonds secured by a specific mortgage on a definite parcel of real estate are known as "real estate mortgage bonds." These bonds may be further classified according to the type of property mortgaged as office building, apartment, hotel, or garage bonds.

Bonds that are issued against a single large mortgage differ

somewhat from those that are issued against the pledge of a number of different mortgages. In the latter case, several mortgages are assigned to a trustee and bonds are issued against them as collateral. The security here consists of a group of small mortgages in contrast with a fractional participation in one large mortgage.¹² Bonds secured by a pool of mortgages are sometimes called "collateral real estate mortgage bonds." Where the underlying mortgages are on farm properties, the bonds may be referred to as "farm mortgage bonds."¹³

Under another method of financing real estate projects, the land trust, or fee ownership, certificate is used. Let us assume, in order to get a picture of the steps leading up to the issuance of such securities, that a group of men wishes to erect an office building on a given site. The first step involves the purchase of the land, which may be made by an individual or a corporation. Thereupon, a long-term lease is drawn up with the individual or the corporation that is to erect the building, providing for the erection of the building on the land as well as for the payment of an annual rental. The ownership of the land is then divided into a number of fractional parts by the issuance of land trust certificates. The purchase of a certificate gives the holder the right to a fractional participation in the leased ground. The owner of the building is usually given the option to purchase the land at some time during the life of the lease, at a price that will enable all the fee ownership certificates to be called. The lease also provides for the payment of an annual rental sufficient to pay all dividend requirements on the certificates. On the other hand, if the lessor is unable to meet his rental charges, the lease is broken and title to both land and building reverts to the certificate holders. A bond secured by a building constructed on such leased ground would be known as a "leasehold mortgage" bond.

Collateral trust bonds. Collateral trust bonds are secured by the pledge of other securities, either stocks or bonds, and customarily are issued by companies found in the so-called "investment group." Such bonds are secured by a mortgage, but the property pledged differs from that pledged to secure what is or-

¹² For a complete discussion of real estate bonds, see Chapter 22.

¹³ Under the Federal Farm Loan System in this country, Federal land banks are permitted to issue debenture bonds. Private joint-stock banks formerly had the same privilege. The principal assets of these banks are farm mortgages. Such bonds are sometimes referred to as farm mortgage bonds. A complete discussion of the operations of these banks will be found in Chapter 23.

dinarily called "mortgage" bonds. The latter term is usually applied only to issues secured by real property. Stocks and bonds, however, are personal property, and "intangible," as the term is used in law.¹⁴ (Personalty is any movable property, as distinguished from real property, or real estate.) Further classification may be used here to designate the nature of the collateral pledged. Where the underlying securities are all first mortgage bonds, the collateral issue may be known as a first mortgage collateral trust bond.

Equipment securities. Securities that are secured by a pledge of railroad equipment, either under a mortgage or by means of a lease or a conditional bill of sale, are known as equipment securities.¹⁵ Where the conveyance of the pledged property is in the form of a mortgage, the obligations are commonly referred to as "equipment bonds." Under the most commonly used arrangement, however, title to the equipment remains in the hands of a trustee, and the equipment is leased to the railroad until the rentals have retired all of the certificates, after which the trustee conveys title to the railroad. Under this plan, equipment trust *certificates* are issued, giving a participation, or share, in the leased equipment. Legally, such a certificate is an ownership instrument like a share of stock; practically, or from an investment point of view, a credit type of instrument is created with a fixed claim against the leasing railroad.

Miscellaneous. It would be possible to extend almost indefinitely our list of bonds classified according to the nature of the security. Thus, "timber bonds" designates issues secured by timber lands; "terminal bonds," issues secured by terminal property; "wharf bonds," issues secured by wharves; "steamship bonds," issues secured by steamship companies. It is scarcely necessary to offer any elaborate definitions where the title indicates rather clearly what security is given.

The following outline summarizes the different kinds of bonds already considered, with special reference to the character of the lien and the nature of the underlying assets:

CLASSIFICATION OF BONDS ACCORDING TO LEGAL NATURE OF SECURITY

I. *Unsecured.*

- A. Federal and foreign government bonds.
- B. State and territorial bonds.

¹⁴ See further discussion of collateral trust bonds, p. 171.

¹⁵ See further discussion of equipment securities, p. 168.

- C. Bonds of political subdivisions.
 - 1. County bonds.
 - 2. City and town bonds.
 - 3. Tax District bonds.
- D. Corporate issues.
 - 1. Debenture bonds.
 - 2. Unsecured corporate notes.
 - 3. Receivers' and trustees' certificates.
- E. General credit used to supplement (issue may be secured also).
 - 1. Assumed bonds.
 - 2. Guaranteed bonds and stocks.
 - 3. Indorsed bonds.
 - 4. Joint bonds.

II. Secured.

- A. Secured by real property.
 - 1. Business corporations.

Titles of such bonds may be: first, second, or third mortgage; general mortgage; first and refunding; first refunding; prior lien; refunding; blanket mortgage; divisional; timber; terminal; wharf.
 - 2. Real estate securities.

Possible titles: first or second mortgage; office; hotel; apartment; garage; land trust certificates; leasehold mortgage; collateral real estate mortgage; farm mortgage.
- B. Secured by personalty.
 - 1. Collateral trust bonds.
 - 2. Equipment trust certificates, or bonds.
 - 3. Steamship bonds.

Classification of bonds according to purpose of issue. Another basis for the classification of bonds is the purposes for which the bonds are issued. "Funding" bonds, where the title is carefully used, means an issue to provide for the payment of short-term indebtedness; "refunding" bonds, an issue for paying off existing bonds about to become due, or for the purpose of calling bonds prior to their maturity date, where such a policy is desirable. The term "consolidated bond" may apply to an issue which is put out for the purpose of retiring and consolidating all the various bonds of a corporation into one issue. In this way the corporation is able to simplify its financial structure; or the term may be used to designate an issue secured by a mortgage on property of different corporations which have been consolidated. Such bonds may constitute a first mortgage on the various properties, or they may be subject to existing liens.

The term "purchase money bond" refers to an obligation issued in full or in part payment for property, or for a company about

to be absorbed. When such a bond is issued for property, it is probable that it will be a lien on that property; when for a company, it is probable that the stock of the company will be pledged as security for the bond, and if the interest is not properly paid, the stock will revert to the bondholders.

"Construction bonds" are issued to secure money for the construction of new buildings or property. The authorized issue is sufficient to provide the necessary funds to complete the project, but funds are generally paid to the corporation only as the progress of the construction warrants. Should the entire issue be sold in advance, the trustee is authorized to make payments at various stages of the construction. In other cases, bonds are sold only as construction progresses.

"Interim receipts" may be given to purchasers of bonds when the engraving and printing of a bond issue have not been completed at the time of original sale. Such receipts may be traded in like ordinary bonds, until the regular certificates or "definitive securities" have been made available for exchange with these temporary instruments.

It is also possible to reclassify under our present heading some of the types of bonds already considered. Thus, while a terminal bond is so called because it is secured by terminal property, it may, nevertheless, be included in our present group, if it was issued *for the purpose* of securing terminal property. The same may be said of equipment bonds, wharf bonds, timber bonds, bridge bonds, and so on. It is impossible entirely to avoid duplication in a discussion of this nature.

"Extended bonds" are created when, for some special reason, the payment of the principal of a bond has been extended beyond the stated maturity date by the mutual consent of the corporation and the owner of the bond. The security is then known as an "extended," a "continued," or a "renewed" bond. The extension privilege is stamped on the old certificate, and all other features of the contract remain the same. This procedure is sometimes used when the corporation is unable to obtain by the sale of new securities the funds necessary for repayment, and the bondholders feel compelled to accept the extension as better than forcing the company into bankruptcy; and sometimes when the superior position of the existing lien permits cheaper financing through an extension than by a new issue. Receivers' and trustees' certificates are issued for the purpose of providing funds for operations during receivership and bankruptcy.

Government bonds. Our discussion up to this point has dealt primarily with corporate bonds. We may similarly classify government, state, and municipal issues, according to the purposes for which they are issued. "Special assessment" bonds are floated to enable the city to make local improvements; and, as their name implies, interest and principal on these bonds are provided for by special assessments against the property which is benefited by such expenditures. "Tax anticipation warrants" are issued to secure funds in anticipation of taxes and are paid off as soon as taxes are collected. "Water bonds" are sold to provide the funds necessary for the construction of municipal water works. "Paving bonds" may be issued for the purpose of paying for street paving, "sewer bonds," for the construction of sewers, and so on. It is hardly necessary to give an exhaustive definition of all the various titles under which municipal bonds exist, for their very names are self-explanatory.¹⁰

Summary. The outline below summarizes the various bonds that have been discussed under the classification "purpose of issue," and suggests others not specifically mentioned. This method or basis for classification has some value to the investor, in that it centers attention on the purposes for which his funds are to be used. On the other hand, the purpose for which an issue is floated does not reflect in any direct way the contract provisions which add to or subtract from its investment merit, nor does the question of purpose indicate the financial standing of the issuing corporation.

CLASSIFICATION OF BONDS ACCORDING TO PURPOSE OF ISSUE

Corporate Bonds:

- Funding or refunding bonds.
- Consolidated bonds.
- Purchase money bonds.
- Construction bonds.
- Interim bonds or receipts.
- Terminal bonds.
- Equipment bonds or trust certificates.
- Wharf and dock bonds.
- Timber bonds.
- Bridge bonds.
- Extended, continued, or renewed bonds.
- Receivers' and trustees' certificates.

¹⁰ Federal, state, and municipal bonds are treated more fully in Chapters 23, 24, and 25.

Government, State, and Municipal Bonds:

- Special assessment bonds.
- Tax anticipation warrants.
- Water bonds.
- Paving bonds (also street and road).
- Sewer bonds.
- Bonus bonds.
- Drainage bonds.
- Irrigation bonds.
- Levee bonds.
- Reclamation bonds.
- Electric light and railway bonds.
- Sanitary district bonds.
- Incinerator bonds.

Classification of bonds according to type of issuing debtor. Another possible classification of bonds is according to the type of the issuing unit. When discussing government bonds, one may refer to obligations of our Federal Government, to state bonds, to bonds of territorial possessions, to bonds of municipalities, or to bonds of foreign countries. Similarly, corporate bonds may be referred to as railroad bonds, public utility bonds, industrial bonds, real estate bonds, or foreign corporate bonds. Such a classification likewise has some value to the investor in that it enables him to study the business risks inherent in different lines of undertakings. By so doing, he may conclude, for instance, that, as a class, bonds of our Federal, state, and municipal governments have the highest investment rating of all securities. Until recently, railroad securities, as a group, were generally accorded second rank—largely because the railroads in a country such as ours, in which there is found a geographical division of labor, furnished an indispensable service. During the past ten years, however, public utility securities have come to hold a ranking superior to that of railroad securities. At present, judging them on a yield basis, they are rated the higher of the two. The difficulties which railroads have experienced in recent years have diverted a portion of the funds ordinarily invested in railroad bonds to the public utility issues. In addition, the rapid growth in the public utility field, traction companies excepted, has created a demand for this type of security. Industrial securities, as a class, are usually accorded a considerably lower rating than either rails or utilities, on account of competition and other factors which inject elements of risk into their operations. The term "foreign bonds" is applied to the issues of foreign governments, although there is a tendency, in practice, to use the term

indiscriminately, whether discussing obligations of foreign governments or those of private enterprises located in foreign countries.

Summary. A detailed classification of bonds according to the nature of the issuing debtor follows. There has been no attempt here to supply further definition than that appearing in the descriptive title.

CLASSIFICATION OF BONDS ACCORDING TO TYPE OF ISSUING DEBTOR

Government Bonds:

- Federal Government bonds.
- State bonds.
- Territorial bonds.
- Municipal bonds.
 - County bonds.
 - Town bonds.
 - City or municipal bonds.
 - School district bonds.
 - Special district bonds.
- (For other types see page 140.)
- Foreign government bonds.

Corporate Bonds:

- Railroad bonds.
- Public utility bonds.
 - Electric light and power bonds.
 - Electric railway bonds.
 - Express company bonds.
 - Gas company bonds.
 - Telephone and telegraph bonds.
 - Water company bonds.
- Industrial bonds.
 - Steel bonds.
 - Steamship bonds.
 - Textile company bonds.
 - Automobile company bonds.
 - Copper company bonds.
 - Oil bonds.
 - Equipment company bonds.
 - Timber bonds.
- Real estate bonds.
- (See subdivisions on page 137.)
- Foreign bonds of private corporations.

Classification of bonds according to methods of payment. Those features of the bond contract which pertain to the methods of paying the principal, and also the interest thereon, may cover matters of detail merely, or they may involve questions of vital

importance to the investor. Whether the bonds are coupon bonds or registered bonds is a matter of detail and has no bearing upon investment merit. Both the principal and the current interest of coupon bonds are payable to bearer. That is, the person having physical possession of the bond has merely to clip the coupons as they become due and present them to the nearest bank for collection. Likewise, when the bond becomes due, the principal sum may be collected on presentation of the bond itself. For registered bonds, on the other hand, a register, which contains the name of each bondholder, is kept at the transfer office of the company, and when interest is due, it is mailed to the holders in the form of a check. At maturity, the principal is so paid. If a registered bond is sold, it must be indorsed by the seller and sent to the transfer agent of the company in order that it may be registered in the name of the new holder. Bonds may be registered as to both principal and interest, or as to principal only.

Of more importance are the provisions made in the bond for payment of the principal at maturity. The bond contract sometimes provides that the issuing corporation shall set aside from earnings each year a definite sum, in order that the principal of the bond may be met at maturity. The fund into which such sums are paid is called a sinking fund and the bond is called a "sinking fund bond."

The same result may be accomplished by dividing the entire issue of bonds into series with varying maturity dates. Under this plan, a certain portion of the bonds comes due and is paid each year. At maturity, the last issue only remains to be paid. Such bonds are called "serial bonds." They have certain advantages over sinking fund bonds. Of the former, a certain percentage of the entire issue becomes due each year and must be paid off. Not only is there no uncertainty as to the maturity of the bonds, but also there is the assurance that the bonds will be paid as they fall due, provided, of course, the financial condition of the corporation permits. From the bondholders' standpoint, the retirement, annually, of a certain amount of the issue increases the equity behind the remaining bonds. With sinking fund bonds, however, there is often a question as to whether the fund will really be available at the maturity of the issue. This adverse possibility is now generally guarded against by the requirement that the sinking fund shall be employed each year to repurchase some of the bond issue itself, by call if necessary. Even in this event, however, the sinking funds for small, unlisted

or municipal bond issues are sometimes neglected without the knowledge of the injured creditors.

Corporations frequently reserve the right to call in and pay off all or part of an issue before maturity at some designated price. A provision of this nature may enable the corporation to reduce its fixed charges when interest rates are low, and is desirable from the borrower's point of view for this reason. The bondholder, on the other hand, may find it difficult, after his bond has been called, to reinvest the funds he receives at the same rate of interest that he formerly received.¹⁷ Quite the reverse of the callable feature in its effect upon the bondholder is the conversion privilege. Convertible bonds, as the name implies, may be converted at a specified price into some other security of the debtor corporation, almost always the common stock. Of course, the purpose in extending such a privilege to the bondholder is to enable him, at some future time, to enjoy a greater participation in the prosperity of the company. Where the bond is convertible into preferred stock, the participation is restricted; but where conversion may be made into common stock, the bondholder is in a dual position. He has a contractual and preferred investment during the less certain years of the corporation's growth but may, at his own option, become an owner with unrestricted participation if the company becomes successful.

A rare type of bond involves the payment of both principal and interest in terms of purchasing power rather than in terms of a specific number of dollars. The amount so paid is computed on the basis of a selected index number. This bond might be designated a stabilized bond in that the return, in terms of effective purchasing power, is stabilized.¹⁸

Prior to the suspension of the gold standard in the United States (1933), nearly all bonds had for a good many years been made payable in gold coin of the then prevailing weight and fineness. Such a bond was called a "gold bond." Not only may such bonds no longer be issued, but the provision has lost its significance since a Federal law was passed providing that the bonds already issued should be paid only in "lawful money," even though the gold basis for the United States dollar had been decreased.

¹⁷ The present chapter is one of definition and classification only. For this reason we shall postpone detailed consideration of the effect of the call feature on the investor until a later chapter. See Chapter 9.

¹⁸ For an example of this type of bond, see Chapter 9.

Where bonds are payable in English pounds, they are known as "sterling bonds."¹⁹ In similar fashion, bonds may be payable in French francs, German bonds in marks, and so on. When bonds are payable in a foreign currency, an additional element of risk is created, for it is necessary that the investor convert the funds he receives as interest or principal into the currency of this country at the prevailing rate of exchange. So long as the current exchange quotations do not diverge substantially from par, there is no large loss or gain. But when fluctuations are wide, as has been the case in recent years, a serious situation is created. The holders of German and French bonds, payable in marks and francs, suffered severe losses after 1920, when the currencies of these countries were greatly inflated. In fact, even the holders of sterling bonds were seriously affected, with sterling exchange at a substantial discount. When the United States went off the gold standard, the situation was reversed, and foreign currency bonds rose in value. Should an inflationary policy depreciate the United States dollar further, foreign currencies might offer further profit possibilities. Attempts to profit from such exchange fluctuations are subject to the hazard of corresponding inflationary policies of other countries.

A bond without maturity running perpetually is known as a perpetual bond. Such are the English consols and the French rentes. The following table summarizes the more important types of bonds, classified according to methods of payment:

CLASSIFICATION OF BONDS ACCORDING TO METHODS OF PAYING PRINCIPAL
AND INTEREST

Payment of Principal:

- Coupon bonds.
- Registered bonds.
- Sinking fund bonds.
- Serial bonds.
- Callable bonds.
- Convertible bonds.
- Stabilized bonds.
- Gold bonds.
- Bonds payable in foreign currency.
 - Sterling bonds.
 - Franc bonds.
 - Mark bonds.
- Perpetual bonds, consols, and rentes.

¹⁹ Alabama Great Southern 5's, 1927, were payable in pounds. New York, New Haven and Hartford 15-year European loan deb. 7's of 1925 were originally issued in francs.

Payment of Interest:

- Coupon bonds.
- Registered bonds.
- Stabilized bonds.
- Bonds payable in foreign currency.

The preceding classification is presented, not with the idea of covering in an exhaustive fashion all the various bonds that might be included, but rather with the idea of familiarizing the student with the short descriptive terms customarily applied to bonds when emphasis is sought in respect to methods of payment and redemption.

Short descriptive titles misleading. A further word of caution is in place at this time. The only real purpose, in dealing with short descriptive titles in the fashion that we have just employed, and the only advantage of the definitions so far inserted, is to familiarize the student with some of the terms commonly used in investment circles and to give him a bird's-eye view of the entire field. Short titles, however, are surprisingly misleading, so far as the real security behind a bond is concerned. In fact, before the investor can consider himself in a position accurately to judge the merits of a given investment, he must undertake an exhaustive study of the terms and conditions under which it was issued and the contract which the corporation has made with the investor. With respect to a bond, this requires a careful analysis of the corporate indenture; with respect to stock, an investigation of the charter and the by-laws of the corporation.

A first and refunding bond may be identified as a first mortgage bond, although it is a first mortgage on only a relatively insignificant part of the property. A sinking fund bond may, upon examination, prove to have provisions, in respect to sinking fund payments, so weak as to be of little value. A collateral trust bond may be secured by a deposit of common stock only. In brief, the mere descriptive title of a bond, which is used in classifying bonds roughly, is of value only in so far as the contract features found in the instrument under which the bond is issued support the general impression which the title conveys. The real character of the bond, therefore, is not to be found in a brief descriptive title, but in an exhaustive study of the contract features in what is known as the corporate indenture, deed of trust, or corporate mortgage—that is, the legal instrument in which the bond contract is set forth. This type of information

about stock issues is found in the charter and by-laws of the corporation. We shall take up, in following chapters, a detailed consideration of the more important legal characteristics of investments, and at that time, the error of placing too great a reliance on the descriptive title of a security will be more apparent.

Secured Bonds

Secured loans are always accompanied by the pledge of specific assets, generally by means of a mortgage. A mortgage may be defined as a deed absolute in form, but subject to defeasance, given to secure the performance of some act on the part of the mortgagor, usually his repayment of a loan made by the mortgagee at the time of the execution and delivery of the mortgage. In the customary transaction, the mortgagor borrows money from the mortgagee and gives as security a deed of the property, which deed provides that it shall be null and void if, at the time appointed, the mortgagor repays the loan.

When the term "mortgage" is used, the average person thinks of an ordinary real estate mortgage. However, as we have seen, business corporations often mortgage their properties in order to secure loans. These mortgages may cover only a specific property, but are generally drawn so as to cover all fixed assets, that the company owns or may own after the mortgage is drawn. A third form of security, that is relatively rare, is the so-called equipment mortgage, in which the relations of all parties involved are somewhat complex and a description of which, therefore, will not be attempted here.¹ A fourth kind of mortgage used in corporate financing is the so-called collateral trust mortgage, in which the security consists wholly of negotiable securities, usually the stocks and bonds of subsidiaries owned by the parent company.²

¹ For a detailed account of equipment securities, see p. 168.

² See p. 172.

Illustration of typical mortgage. In order to emphasize more clearly the real nature of the mortgage we shall examine one in detail. The mortgage shown on page 160 is a reproduction of a simple real estate mortgage executed by an individual. In theory it does not differ from the complex mortgage given to secure corporate bonds.

REPRODUCTION OF MORTGAGE INSTRUMENT ⁸

Comments

Parties. Notice that Brooks is stated to be unmarried, since if he were married his wife's name would have to appear as co-maker in order to make the mortgage precede her dower right.

Preamble or recitals.

Granting Clause, including consideration. Notice the true consideration is contained in the recitals. The consideration here mentioned amounts to legal "camouflage."

Description of the property mortgaged.

Mortgage

THIS INDENTURE, made this 10th day of May, 1932, between Abner Brooks (unmarried), party of the first part, and hereinafter designated the mortgagor, and Charles Dawson, party of the second part, hereinafter designated the mortgagee.

WHEREAS, the said mortgagor is, by virtue of a bond bearing even date herewith, justly indebted to the said mortgagee in the sum of \$25,000 lawful money of the United States, secured to be paid on the 10th day of May, 1934, together with interest thereon, to be computed from the 10th day of May, 1932, at the rate of 6 per cent par annum, and to be paid on the 10th day of November next ensuing the date hereof and semiannually thereafter.

NOW THIS INDENTURE WITNESSETH, that the mortgagor, for the better securing the payment of the said sum of money mentioned in the said bond or obligation, with interest thereon, and also for and in consideration of the sum of ONE DOLLAR, to the mortgagee in hand paid by the mortgagee, the receipt whereof is hereby acknowledged, does hereby grant and release unto the mortgagee, and to his heirs and assigns forever, ALL that certain lot, piece, or parcel of land, with all the buildings and improvements thereon made or erected, situate, lying and being in the Borough of Manhattan, City, County and State of New York, bounded and described as follows, to wit:

BEGINNING at a certain point on the north side of Joffre Avenue, distance one hundred feet east of that point known as the northeast corner formed by the intersection of Foch Street and Joffre Avenue, running

⁸Gerstenberg, C. W., *Financial Organization and Management* (New York: Prentice-Hall, Inc., 2d rev. ed., 1939), pp. 198-203.

thence (1) fifty feet due east on a line with the said Joffre Avenue; thence (2) one hundred feet due north on a line parallel with said Foch Street; thence (3) fifty feet due west on a line parallel with said Joffre Avenue; thence (4) one hundred feet due south on a line parallel with said Foch Street to the place of beginning.

TOGETHER with all fixtures and articles attached to or used in connection with said premises, all of which are declared to be covered by this mortgage; together with the appurtenances, and all the estate and rights of the party of the first part in and to said premises.

Habendum clause states the quantity of the estate conveyed. Notice that if the instrument closed here, the mortgagee would get the fee, that is, the absolute title.

Defeasance clause states conditions under which conveyance granted in former paragraphs will be defeated.

TO HAVE AND TO HOLD the above-granted premises unto the said mortgagee, his heirs and assigns forever.

PROVIDED ALWAYS that if the said mortgagor, or the heirs, executors, administrators, or the personal representatives, successors or assigns of the said mortgagor, pay the said sum of money mentioned in the said bond or obligation, and the interest thereon, at the time and in the manner mentioned in the said bond or obligation, then these presents and the estate hereby granted, shall cease, determine, and be void.

Covenants. The following covenants are not necessary to a complete mortgage. Some are almost always included, others are usually included. They are agreements by the mortgagor, who retains actual possession of the property, better to protect the mortgagee.

AND the said mortgagor covenants with the mortgagee as follows:

Covenant conferring right to sell. This covenant is, under the laws of most States, unnecessary.

FIRST—That the mortgagor will pay the indebtedness as hereinbefore provided, and, if default be made in the payment of any part thereof, the mortgagee shall have power to sell the premises herein described according to law. Said premises may be sold in one parcel, any provision of the law to the contrary notwithstanding.

Covenant to insure and repair.

SECOND—That the mortgagor will keep the buildings on the said premises insured against loss by fire for the benefit of the mortgagee.

And should the mortgagee, by reason of any such insurance against loss by fire, as aforesaid, receive any sum or sums of money for any damage by fire to the said building or buildings, such amount may be retained and applied by said mortgagee toward payment of the amount hereby secured, or the same may be paid over either wholly or in part to the said mortgagor, or the heirs, successors or assigns of the mortgagor, to enable said mortgagor to repair said buildings or to erect new buildings in their place, or for any other purpose or object satisfactory to the said mortgagee, without affecting the lien of this mortgage for the full amount secured hereby before such damage by fire or such payment over took place.

Interest and tax clause. This covenant serves to "accelerate the maturity" if taxes or interest are not paid.

THIRD—And it is hereby expressly agreed that the whole of said principal sum, or so much thereof as may remain unpaid, shall become due at the option of the mortgagee after default in the payment of any tax, assessment or water rate for sixty days after notice and demand, or in case of the actual or threatened demolition or removal of any building erected upon the said premises, anything herein contained to the contrary notwithstanding.

Covenants of "general warranty" and "further assurance."

FOURTH—That the mortgagor will execute any further necessary assurance of the title to said premises and will forever warrant said title.

Right of entry.

FIFTH—That if default shall be made in the payment of the principal sum mentioned in the said bond, or of any installment thereof, or of the interest which shall accrue thereon, or of any part of either, at the respective times therein specified for the payment thereof, the mortgagee shall have the right forthwith, after any such default, to enter upon and take possession of the said mortgaged premises, and to let the said premises, and receive the rents, issues and profits thereof, and to apply the same after payment of all necessary charges and expenses, on account of the amount hereby secured, and said rents and profits are in the event of any such default hereby assigned to the mortgagee.

Receiver.

SIXTH—And the mortgagee shall also be at liberty immediately after any such default, upon proceedings being commenced for the foreclosure of this mortgage, to apply for the appointment of a receiver of the rents and

profits of the said premises without notice, and the mortgagee shall be entitled to the appointment of such a receiver as a matter of right, without consideration of the value of the mortgaged premises as security for the amount due the mortgagee, or the solvency of any person or persons liable for the payment of such amounts.

The right conferred by this covenant is termed "the right of subrogation."

SEVENTH—And the mortgagor does further covenant and agree that, in default of the payment of any taxes, charges, and assessments which may be imposed by law upon the said mortgaged premises, or any part thereof, it shall and may be lawful for the said mortgagee, without notice to or demand from the mortgagor, to pay the amount of any such tax, charge, or assessment, and any amount so paid the mortgagor covenants and agrees to repay to the mortgagee, with interest thereon, without notice or demand, and the same shall be a lien on the said premises, and be secured by the said bond and by these presents and the whole amount thereby secured, if not then due, shall thereupon, if the mortgagee so elect, become due and payable forthwith, anything herein to the contrary notwithstanding.

So-called Brundage clause. Inserted in mortgage principally to permit mortgagee to raise the rate of interest equal in amount to any taxes that State may impose on the mortgagee in respect to the mortgage.

EIGHTH—It is hereby further agreed by the parties hereto that if, at any time before said bond is paid, any law be enacted changing the law in relation to taxation so as to affect this mortgage or the debt thereby secured, or the owner or holder thereof, in respect thereto, then said bond and this mortgage shall become due and payable at the expiration of thirty days after written notice requiring the payment of the mortgage debt shall have been given to the owner of the mortgaged premises, anything herein contained to the contrary notwithstanding.

Covenant to give estoppel certificate, which, if the mortgagee wishes to sell the mortgage, will be demanded by the purchaser of the mortgage.

NINTH—The mortgagor, or any subsequent owner of the premises described herein, shall, upon request, made either personally or by registered mail, certify, in writing, to the mortgagee or any proposed assignee of this mortgage, the amount of principal and interest that may be due on this mortgage, and whether or not there are any offsets or defenses to the same, and upon the failure to furnish such certificate after the expiration of six days in case the request is made personally, or after the expiration of thirty days after the mailing of such request in case the request is made by mail, this mortgage shall

Acceleration of maturity on account of violation of municipal ordinances.

Covenant as to communications.

become due at the option of the holder thereof, anything herein contained to the contrary notwithstanding.

TENTH—It is expressly understood and agreed that the whole of said principal sum and the interest shall become due at the option of the mortgagee, upon failure of any owner of the above described premises to comply with any requirement of any department of the City of New York, within six months after notice in writing of such requirements shall have been given to the then owner of said premises by the mortgagee, anything herein contained to the contrary notwithstanding.

ELEVENTH—Every provision for notice and demand or request contained herein shall be deemed fulfilled by written notice and demand or request personally served on one or more of the persons who shall at the time hold the record title to the premises, or on their heirs or successors, or by registered mail directed to such person or persons or their heirs or successors, at his, their, or its address to the mortgagee last known.

IN WITNESS WHEREOF, the said mortgagor hath signed and sealed this instrument the day and year first above written.

ABNER BROOKS (Seal)

Signed, sealed, and delivered
in the presence of

Edward Frothingham
George Hamilton

State of New York }
County of New York } ss:

On this 10th day of May, 1932, before me personally came Abner Brooks, to me known and known to me to be the person described in and who executed the foregoing instrument, and he duly acknowledged to me that he executed the said instrument for the purposes therein contained.

ISAAC JOHNSON,

Notary Public No. 1001,
County of New York,
State of New York.

(Notarial Seal)

Operation and purpose of mortgage. Under the common law, the real estate mortgage printed above operated just as it read—as a transfer of the legal title of the property. The mortgagee then had the legal title which the mortgagor could recover upon the payment of the loan. This right to recover the legal title is called the equity of redemption.

If, on the date set for the repayment of the loan, the money

is not forthcoming, the mortgagee may begin foreclosure proceedings. The common law proceedings are now sometimes called "strict foreclosure," to indicate that their purpose is to foreclose in order to prevent the mortgagor in the future from claiming the right to redeem. These foreclosure proceedings in effect vest the equitable as well as the legal title in the mortgagee. Under modern statutes, foreclosure proceedings usually take the form of what is known as "foreclosure and sale." An action is brought, the purpose of which is to obtain a decree from an equity court directing the sale of the property for the benefit of the mortgagee. If a first mortgage is being thus foreclosed, the property sold is actually the interest of the mortgagor, as well as the interest of the second mortgagee, if there be one, and of all persons acquiring interests in the property subsequent to the recording of the first mortgage. Thus if a second mortgage is being foreclosed, the owner, the third, and subsequent mortgagees are made parties to the action, since it is their interests which are being sold. The purchaser at the foreclosure sale would take the property subject to the first mortgage and subject to taxes, but clear of the other liens.

Under very modern statutes, as, for example, in New York, mortgages are worded, not as a conveyance, but as a lien, and the only kind of action to be brought is a foreclosure of the lien. The general effect is the same as foreclosure and sale.

Illustration of principles. The principles contained in the foregoing paragraphs are so important that it seems advisable to clarify them with an illustration. Thus we may assume that *A*, the owner of the property reasonably worth \$100,000, mortgages it to *B* for \$60,000, and then to *C* for \$20,000, and then to *D* for \$15,000. *B* will be said to have a first mortgage; *C*, a second mortgage; and *D*, a third mortgage. What really happened is this: *A* has turned over his legal title to *B*, and has retained an equitable right, called the equity of redemption—that is, the right to recover what he has transferred upon giving back to *B* the amount *B* has loaned. When *A* gives the second mortgage to *C*, he really turns over to him the equity behind *B*'s mortgage and takes another equity of redemption. This second equity of redemption is the right to redeem the first equity of redemption. The same process takes place with the third mortgage.⁴

⁴The word "equity" is often used in two senses; first, as an abbreviation of equity of redemption, in which case it may be defined as a legal right; and

We can now bring out the relationship in still more detail by assuming that a mortgage is foreclosed. If the interest on the third mortgage is not paid, it will be foreclosed, and the purchaser at the foreclosure sale will buy the equity which the owner had, plus the third mortgagee's interest in the property (subject to the first and second mortgages). Nominally, this was worth \$20,000. Let us suppose the sale brought \$12,000 and was made to *X*. What would *X* get? He would get the property encumbered with the mortgages to *B* and *C*. Since *D*'s mortgage was for \$15,000, *D* would not be paid in full out of the sale and would look to *A* personally for the deficiency. If *A* had sold the property to *W* before the foreclosure, and *W* had assumed all the mortgages, *D* would collect the deficiency judgment from *W*.⁵

Now, let us assume the facts to be as they were originally, but that the interest on *B*'s mortgage is not paid. Let us suppose that *B* forecloses. He would bring his action against *A*, the owner, and against *C* and *D*, the subsequent mortgagees. The property now would be sold to a purchaser who would get it free from all encumbrances. If *X* bought it and paid only \$50,000 for it, *B* would get the entire \$50,000. (For the sake of simplicity, we omit the cost of the foreclosure proceedings, although actually it is first to be paid from the proceeds of the sale.) *B* would also have a deficiency judgment against *A* for \$10,000, since *A*'s personal debt on his bond is in fact \$60,000, of which only \$50,000 was paid by the foreclosure sale. *C* and *D* as well could hold *A* personally liable for the amounts of the mortgages they hold, if such mortgages are accompanied by a properly executed bond or note.⁶

If *X*, instead of paying \$50,000, had paid \$70,000, this latter sum would be paid as follows: \$60,000 to *B* and \$10,000 to *C*. If *X* had paid \$85,000, this sum would be paid thus: \$60,000 to *B*, \$20,000 to *C*, and \$5,000 to *D*. If, by any chance, the property sold for \$97,000, the sums paid would be \$60,000 to *B*, \$20,000 to *C*, \$15,000 to *D*, and \$2,000 to *A*.

second, as the value of that right. In the above example, *A* had an equity of \$40,000 after giving the first mortgage, an equity of \$20,000 after giving the second mortgage, and an equity of \$5,000 only after giving the third mortgage.

⁵ *W* would not be personally liable for deficiency judgments if he took the property "subject to" the mortgages and not "assuming" them.

⁶ See Lilly, William, *Individual and Corporation Mortgages* (Garden City, Long Island: Doubleday, Page & Co., 1918), p. 70.

Corporate mortgages. With real estate mortgages, the mortgagor gives the mortgagee two instruments: the mortgage as described, and a bond or a note. The bond or note evidences the personal obligation of the debtor to repay the loan, whereas the mortgage gives evidence that the obligation rests on the property.⁷ Thus, in the preceding section, where we assumed that the interests of *C* and *D* were wiped out by foreclosure, *A* would still be liable to *C* and *D* on the personal obligation expressed in the notes or bonds that accompanied the mortgages for any deficiency.

The essential difference between an individual mortgage and a corporate mortgage is in the matter of detail. Whereas the former instrument is usually only four or five pages long, corporate mortgages, covering as they do complex assets and an intricate organization of earning power, are generally very long. As an example, the mortgage securing a \$50,000,000 issue of Great Northern Railway bonds contains 50,000 words and has the appearance of a formidable book.⁸ It would seem for these reasons alone that the corporation would not care to issue mortgages to each of its bondholders, numbering, perhaps, in the tens of thousands. But there is really a more vital reason why the mortgagor company does not issue a mortgage direct to each of its mortgagees—that is, to each of its bondholders: while it makes many agreements in the mortgage to protect these bondholders, it prefers not to deal with each one separately, for each, separately, might place a different interpretation on the agreements, and chaos would be the result of negotiations in respect thereto. For these several reasons, then, the general corporate mortgage is made out to a trustee or trustees, who represent all the bondholders, however that body may be constituted at any time. Sometimes the instrument is called a deed of trust—that

⁷ If the mortgagor sells the property *subject* to the mortgage, the mortgagor will still remain primarily liable, but of course the purchaser—that is, the new owner—would receive the benefit of the payment of the mortgage and ordinarily would pay the mortgage on the due date. If he did not pay it and the mortgage were foreclosed, the original mortgagor would be liable for any deficiency in case the proceeds of the foreclosure sale were insufficient to pay the foreclosure costs plus the amount of the mortgage with unpaid interest. Where the purchaser of the property takes it *assuming* the mortgage, not only his property, but he, himself, becomes liable for the debt.

⁸ It would, of course, be impractical to reproduce such an instrument here. The student is referred to Gerstenberg, C. W., *Materials of Corporation Finance* (New York: Prentice-Hall, Inc., 5th ed., 1924), pp. 183-254, for a complete reproduction of the mortgage securing Jones & Laughlin 5 per cent bonds.

is, a transfer of property by deed to one or more trustees under restrictions set forth in the trust agreement.

These instruments thus made in favor of trustees are sometimes called corporate trust agreements or trust indentures. It should be noted, however, that, while every corporate mortgage is a trust indenture, not every trust indenture is a mortgage. When a corporation issues unsecured bonds, or debentures,⁹ as they are called, it usually makes various promises in respect to the way its business shall be conducted, and these agreements are contained in an indenture to one or more trustees for the benefit of all the bondholders.¹⁰

Trustee. Under the early corporate mortgages, it was customary to appoint one or two individuals as trustees; later it became customary to appoint a trust company, in order to avoid difficulties arising from the limited life of a natural person. But, since large corporations are likely to have property in various states, and since a trust company—a corporation—may have difficulty in protecting property in jurisdictions outside the state of its organization, it is customary to appoint two trustees, one a trust company and the other a citizen.¹¹ Frequently the mortgage provides for some limitation on the powers of the individual, such as that the custody of pledged securities shall rest in the trust company solely.

Position of trustee. Since the trustee is supposed to protect the bondholders, he will be interested in seeing that the mortgage provides him with ample power to carry out this protection without giving him too much responsibility. The fee of the trustee, "for services prior to defaults, is merely a reasonable sum to cover the value of supervision and clerical work in connection with the issue of bonds."¹² The duties and responsibilities of the trustees are carefully prescribed in the mortgage, and since 1939 have to be read and interpreted in the light of the Federal

⁹In America, debentures are a species of bond—namely, an unsecured bond, or one that is not protected by the lien of a mortgage on property. In England, the term "debenture" is used to refer to the whole class of bonds; in other words, Englishmen speak of debentures where Americans speak of bonds.

¹⁰See Gerstenberg, C. W., *Financial Organization and Management* (New York: Prentice-Hall, Inc., 2d rev. ed., 1939), pp. 291-298.

¹¹If the position of the individual trustee becomes vacant, the corporate trustee is usually given power to appoint his successor. Indeed the individual trustee is usually an officer of the company or the corporate trustee.

¹²Stetson, Francis Lynde, et al., *Some Legal Phases of Corporate Financing* (New York: The Macmillan Co., 1917), p. 52.

Trust Indenture Act, which considerably increases those responsibilities.

Functions of trustee. In addition to his other duties, the trustee is responsible for authentication of bonds issued. This work consists simply of signing a certificate, usually found on the outside panel of the bond, and reading as follows:

This bond is one of the bonds described in the within-mentioned mortgage and deed of trust.

..... .. TRUST COMPANY,

By

TRUST OFFICER.

By requiring the proper authentication of all bonds in this way, the danger of overissue or wrongful issue by officers of the corporation is eliminated.

Where stocks and bonds of subsidiaries are pledged as collateral, to secure large blanket mortgages actual transfer of such securities is made to the trustee. Not only is possession transferred, but title as well. The trustee, therefore, becomes the legal owner of the securities on the company's books. Customarily income and voting control are reserved by the parent company as long as dividends are not in default. In carefully drawn mortgages, the trustee is given the power to provide against any impairment of the value of pledged securities.

The corporation, in the corporate mortgage, not only promises to pay interest and principal when due, but agrees also to do many other things. It agrees to keep the pledged property in a state of repair, to pay all taxes when due, and to keep the property insured. There may also be a variety of other provisions, as we shall see, pertaining to such matters as sinking fund, the further issue of bonds, and the maintenance of a sound cash position. In respect to all obligations in the mortgage, the duty of the company is to be responsible, as it were, primarily to the trustee. This arrangement makes the company responsible to but one person, and mortgages usually provide that all steps taken for the enforcement of any of the terms of the mortgage must first be taken by the trustee. In order to safeguard the bondholders in the event that the trustee is negligent, or derelict, a clause is usually inserted to the effect that a certain percentage of those interested, say, 10 per cent, may demand in writing that the trustee take legal steps actively to protect the bondholders' interests in respect to some alleged default. If this

demand is accompanied by a proper tender of fees to cover the costs that the legal action may entail, and if the trustee refuses to act, the bondholders may proceed in their own names. Ordinarily, of course, the difficulty would be adjusted immediately in an equity court by the appointment of a receiver.

Rights of trustee to protect mortgaged property. The trustee is generally given power to protect the mortgaged property; that is, to see that the company pays its taxes, pays the interest on underlying bonds, and keeps its property insured. If any one of these obligations is neglected, the trustee may himself perform the obligation and thus acquire a lien on the property for any moneys disbursed. The trustee is also given the right to release certain property from the lien of the mortgage, suitable provision, however, being made that adequate value be placed under the lien of the mortgage to take the place of the released property. The company also covenants in the mortgage to maintain the value of the mortgaged estate. For a breach of this, or any other covenant, the trustee may declare the principal due, and, if not paid, may begin suit for foreclosure of the mortgage.

Covenants of the mortgagor company. While any number of further covenants, or agreements, may be found in the bond indenture, those of the most immediate interest which may affect the investor's estimate of the character of the issue can be listed as follows:

1. An agreement not to issue any more bonds under this indenture, or only to issue such additional bonds under carefully drawn restrictions. The nature of these restrictions is discussed below under the topic of the open end mortgage.
2. An agreement that the corporation will pay certain taxes to which the bondholder may be subject as a result of his ownership of the bond.
3. An agreement that the company will not consent to an extension of time for the payment of any interest, since such an arrangement would increase the amount of the mortgage debt by an amount equivalent to the deferred interest.
4. An agreement that the company will comply with the rules necessary to make the bonds listable on the stock exchange.
5. An agreement that current assets will be maintained at some stated amount in excess of the current liabilities. (A minimum ratio of current assets to current debt might also be stipu-

lated. The company may agree not to pay dividends that will reduce the current assets below a certain figure, which may be based upon the current and fixed debt, or that will reduce surplus below a certain amount, such as the figure at time of financing.)

6. An agreement to set aside certain amounts for maintenance or for improvements.¹³

7. Provision for debt retirement by sinking fund.¹⁴

Senior mortgages, closed and open end. A bond may be secured by a senior, or first, mortgage on the corporate property, or it may be secured by a second or third mortgage thereon. In fact, the bond may be secured by a first mortgage on some property and a second or third mortgage on other assets of the corporation.

The simplest type of mortgage bond is undoubtedly the bond secured by a closed first mortgage on all the fixed assets of the corporation. Frequently mortgages of this type further specify that all property subsequently acquired shall be included as additional security for the bonds. Such a clause is known as the "after-acquired clause." The First Mortgage 4½'s of B. F. Goodrich Company, for example, are secured by a first mortgage on substantially all fixed assets "now owned or hereafter acquired." Furthermore, the issue is limited to \$45,000,000. From the point of view of the investor the "after-acquired" clause is a desirable provision.¹⁵

Analysis of open end mortgages. The closed first mortgage issue, however desirable it may at first appear to the investor, frequently proves burdensome to the issuing corporation. When expansion takes place and subsequent borrowing is necessary, the company is able to issue only debenture or junior mortgage bonds so long as the closed first mortgage is in the way. A tendency in corporate financing, therefore, has been to issue what is known as open end mortgage bonds. In such cases either there is no limit to the amount of bonds that may be issued under the indenture, or else the authorized amount is placed far in excess of current needs. In either case, however, there are definite restrictions placed on the issue of subsequent bonds under the mortgage.

¹³ See Gerstenberg, C. W., *Materials of Corporation Finance* (New York: Prentice-Hall, Inc., 5th ed., 1924), p. 163.

¹⁴ Sinking fund and serial bonds are discussed at greater length in Chapter 6.

¹⁵ Some trust mortgages may be more specific than others in their provisions as to what shall or shall not go under the old mortgage.

With respect to the Cleveland Electric Illuminating Company First Mortgage, for example, the authorized amount is unlimited, but any bonds issued beyond the first \$18,500,000 must be limited to 75 per cent of the amount expended for additional property, and no bonds shall be issued unless the net earnings for twelve consecutive months of the fifteen preceding months shall be equal to at least twice the interest charge for one year on all bonds outstanding and on bonds immediately to be issued.

How open end issues are secured. The open end issue thus differs from the closed mortgage in that additional bonds may be issued from time to time under the same mortgage, provided the value of new property acquired exceeds, by a specified margin, the new bonds to be issued, and provided, further, that earnings for a stated period have exceeded, by a specified margin, interest charges on both the old bonds and those about to be issued.¹⁰

If the provisions of the open end mortgage are properly drawn, adequate security may be furnished the bondholders and a satisfactory basis laid down for financing subsequent expansion in corporate activities. Thus, if a company had a plant worth, say, \$1,000,000, and had issued, under an open end mortgage, bonds for \$800,000, there would be an equity back of these bonds equal to 40 per cent of the value of the property. If, now, without adding to the property, more bonds are issued, the equity will be "thinned down." On the other hand, if the company retains

¹⁰ The following example will assist the student in understanding more precisely how such provisions actually work out in practice.

Assume that the X corporation has \$5,000,000 of 6 per cent, first mortgage bonds outstanding at the beginning of a given year. The indenture under which these bonds were issued provides that new bonds may be sold up to 75 per cent of the cost of new property acquired, provided previous earnings equaled 1½ times interest charges on old bonds and on bonds about to be issued.

The company, during the year, acquires property at a cost of \$1,500,000. Earnings available for charges for the latest fiscal year are reported as \$550,000. (Present charges amount to \$300,000—that is, 6 per cent on the \$5,000,000 of bonds outstanding.) It is apparent that either one of two limits, whichever is lower, will determine the amount of bonds the corporation may issue. Based on the property acquired, the company might issue \$1,125,000 of bonds (\$1,500,000 x .75). Total charges, however, must not exceed

$$\frac{\$550,000}{1.75}, \text{ or } \$314,286.$$

This amount, capitalized at 6 per cent, would give \$5,238,100. Since there is \$5,000,000 of bonds already outstanding, it is apparent that only \$238,100 of additional bonds may be issued if the new bonds are to bear a 6 per cent coupon. More could be issued if a lower interest rate were possible or if the old bonds could be refunded at a lower interest rate.

its earnings instead of passing them out as dividends to its stockholders, and increases the value of its property to \$1,200,000, a new issue of bonds secured by the same mortgage could be made without injuring the \$600,000 of bonds, provided, of course, that the same percentage of equity were established in the new property as existed in the old. In fact, \$300,000 of new bonds would increase property to \$1,500,000 and debt to \$900,000, still leaving a 40 per cent equity. An ideal situation for open end mortgages is found in the case of public service corporations. In such cases not only are there the provisions of the mortgage itself to prevent the issue of additional bonds, unless the company has increased its property and earning power, but there is also the public service commission, with ample authority to investigate minutely proposed security issues. Indeed, it is the duty of a commission to see that new bonds under an open end mortgage are not issued unless the company has ample security in assets (that is, in liquidating power) and in income (that is, interest-paying power) for both the old and the new issues. For these reasons the tendency in public utility financing is toward the use of open end mortgages.

Investment position of secured bonds. First mortgage bonds, as a class, have the lowest risk of all corporate securities. Such bonds are purchased by investors who seek a minimum of risk and an interest return only, and who wish to free themselves so far as possible from all care and from the burdens of management. This class of security is characterized by a constant income and moderate fluctuations in market prices, which are attributable mainly to changes in the money market. They are strictly credit instruments and, quite naturally, therefore, will move in sympathy with money rates.

Underlying, or first mortgage, bonds are the last of a corporation's outstanding securities to be adversely affected by shrinkage in asset values or earning power and they therefore offer the greatest elements of safety in the matter of both principal and income. Nevertheless, it is impossible, even when purchasing such bonds, entirely to neglect consideration of the value of the pledged assets and their earning power.

First mortgage bonds, *as a class*, must be accorded a very high rating. Yet the investment position of a particular issue will depend on the earning power and economic value of the assets pledged as security. If the property pledged as security for a given issue has an earning capacity adequate to meet all interest

charges and has a value in excess of the amount of bonds outstanding, the bonds will be in a strong position. In fact, even though the general financial position of the obligor corporation is weak, such bonds may be perfectly sound. On the other hand, where the pledged property has doubtful value, or low earnings in relation to charges, it is the general credit position of the corporation itself, as well as the security accorded by the mortgage, that will determine the position of a given bond issue.

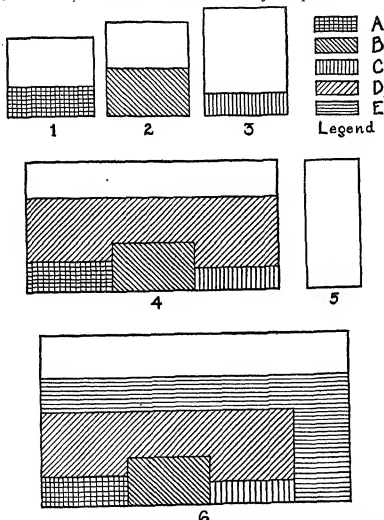
To illustrate this point we shall consider briefly two issues of the Chicago, Milwaukee & St. Paul Railroad, which passed into the hands of receivers on March 18, 1925. The General Mortgage Gold bonds of this company, of which there were four series outstanding, amounting in all to \$146,917,000, were secured by a first lien on 6,258 miles of track, including many important divisions of the road. Another obligation of the road, secured by a first mortgage on 2,363 miles of track, consisted of \$181,664,000 of Chicago, Milwaukee & Puget Sound Railway 1st Gold 4's. Here we have two first mortgage bonds of the same road. Any substantial difference in the market yield of these two issues, therefore, must be accounted for largely on the basis of security. In 1925, the year in which receivers were appointed for the road, the general mortgage bonds averaged to sell at a yield of about 5.3 per cent, which was not far from the yield on which the bonds of roads in excellent financial condition were then selling. At the same time, the Puget Sound 4's sold to net about 9 per cent.

A further analysis of these bonds shows that the first issue amounted to about \$23,500 per mile of pledged property and covered some, rather important divisions of the road, while the Puget Sound 4's amounted to \$76,400 per mile of pledged track and were secured by the unprofitable Puget Sound Extension.

The position of the better-secured issue is further emphasized by the fact that in the final plan of reorganization it was left undisturbed, while the Puget Sound 4's were required to make substantial sacrifices. In fact, this latter issue was accorded precisely the same treatment as the debenture bonds of the road. Furthermore, the holders of the Puget Sound 4's were required by the logic of the situation to accept the terms offered. The alternative course would have led the bondholders themselves to have acquired the pledged property through foreclosure. But its demonstrated value and earning power clearly indicated the futility of this course. On the other hand; if the property had had adequate earnings and value, holders of the Puget Sound

4's would have been offered more satisfactory terms in the reorganization to induce them not to foreclose.

General, blanket, and consolidated mortgage bonds. The ordinary development of corporations, particularly in the public utility and railroad field, is accompanied by the purchase, merger, stock control, or lease of various subsidiary companies. When



Adapted from Gerstenberg, C. W., "Financial Organization and Management," 2d rev. ed., 1939, p. 809.

Figure 8—Methods by Which Successive Mortgages Are Imposed on Consolidated Properties.

the parent company or the holding company undertakes financing, it often must reckon with the underlying securities outstanding against the various acquired companies. Where there are already underlying mortgages on the properties of acquired companies, they are often left undisturbed, and general, blanket, or consolidated mortgages are issued against the consolidated properties subject to underlying bonds.

Figure 8 (page 163) illustrates a typical situation. Let us assume that three companies, 1, 2, and 3, were organized in the same kind of business at different times, and, in the course of growth, placed mortgages *A*, *B*, and *C* upon their respective properties, and that they then consolidated into Company 4, the consolidated properties being valued at a figure somewhat in excess of the separate values of the three companies. Later, Company 4 placed mortgage *D* on its property. Then corporation 6 was organized as a consolidation of Company 4 and Company 5. The latter company had no mortgage on its property. Company 6 then placed mortgage *E* on its properties.

Company 4 would probably call the *D* mortgage a first consolidated mortgage because, although it was not a first mortgage on the property, it was the first mortgage which the consolidated company put on its consolidated property. Mortgage *E*, of Company 6, would probably be called a first and consolidated mortgage. It actually has a first lien on part of the property, that which was brought by Company 5. In Company 6, mortgages *A*, *B* and *C* would be called underlying mortgages. Mortgage *D* is junior to mortgages *A*, *B*, and *C*, and, to a certain extent, senior to Mortgage *E*. Because *E* has a direct lien on a part of the property—probably an important part of that of the whole company—it would hardly be called a junior mortgage. The term “general” would be more appropriate and would be more frequently used. The term “blanket mortgage” is sometimes used for such a mortgage as *E*, and indicates a mortgage on all of a company’s property, owned at the time or thereafter acquired.

Prior lien bonds. The term “prior lien,” when attached to a bond, is likely to be confusing. The value of its lien will depend on what liens it is prior to, and what liens it is junior to. Such bonds may be issued during times of financial stress and by mutual agreement among the old bondholders whose claims are superseded by the prior lien bond or who deposit their old bonds in return for new prior lien bonds. Thus, where the bondholders consent, a new mortgage may be placed on the property prior

in lien to all other mortgages, or with the consent of the junior bondholders, prior to the junior mortgages. Prior lien bonds issued in this manner are rare, because it is difficult to get the consent of bondholders having claims under old mortgages to submit to the creation of a prior lien issue, except under the stress of reorganization.¹⁷ The position of each bond must be determined by an examination of circumstances rather than of the title. The quality of such bonds varies greatly. On the one hand, there are the Northern Pacific Railway prior lien bonds, which underlie both the general lien and refunding and improvement bonds; they are a first lien on the bulk of the mileage. On the other hand, there are the Missouri-Kansas-Texas Railroad prior lien issues, which follow the first mortgage bonds, including certain divisional liens, and are prior only to the adjustment income bonds.

First and refunding bonds. As the name implies, a first and refunding issue constitutes a first mortgage on some of the assets of the company, while the main purpose of the issue is to provide for the retiring of other bonds of the corporation as they become due, or as they may be called. In order to show the miscellaneous security which may actually be pledged to secure issues of this nature, let us consider briefly the Chicago, Rock Island & Pacific Railway First and Refunding Gold 4's. In 1930, \$162,822,000 of such bonds were outstanding. This entire issue was secured by a first or collateral lien on only 1,289 miles of track, and also by a junior lien on some 5,600 miles of track, subject to various underlying mortgages. In addition, the issue was further secured by the pledge of certain collateral in the form of first and consolidated mortgage bonds, amounting in all to \$87,635,688, which represented a first lien on some property, but only a junior on the remainder. The total mileage on which these bonds at present constitute a first lien, however, is so small as to be of little real value to the bond-

¹⁷ In 1922 the Missouri-Kansas-Texas Railroad Company succeeded the old M.-K.-T. Railway Company through reorganization. The new company was authorized to issue \$250,000,000 of prior lien bonds, which were secured by a first lien on 640.9 miles of track, on certain equipment, and by a collateral lien on other equipment. The prior lien bonds were also secured, either directly or through the pledge of first mortgage bonds and all outstanding stock, on the balance of the property of the Missouri-Kansas-Texas Railway Company, subject to certain underlying bonds, which were to be retired. The new prior lien bonds were used in partial satisfaction of the claims of the underlying bondholders at the time of reorganization.

holder, when the total amount of outstanding bonds is considered.

Where the first and refunding issue is used solely to refund underlying bonds as they come due, and where the amount of the issue is increased only as refunding takes place, the refunding issue will eventually constitute a first mortgage on the entire properties of the corporation. On the other hand, where the underlying bonds are extended from time to time, or where the first and consolidated, or first and refunding (sometimes improvement), issue is increased for subsequent additions and extensions, perhaps already encumbered with first mortgages, the bond may be said to have risk elements worth considering.¹⁸

The first inquiry, therefore, with respect to a refunding mortgage bond, pertains to the extent of the property on which the issue has a direct first lien. And, where it appears that the bond enjoys a first lien on only a relatively small part of the entire assets of the company, more reliance should be placed on the financial condition of the issuing corporation than on the character of the bond, for, where the bond is secured by a first mortgage on insignificant parts of the corporate property, the bondholder is in only a slightly better condition, if any, than is the unsecured bondholder, except when the total debt is unusually small. The financial condition of the corporation becomes of paramount importance whenever a bond is unsecured or holds only a weak junior lien.¹⁹

¹⁸ To illustrate how a first and refunding issue may be subordinated by extending underlying bonds, we shall refer briefly to the First Mortgage Bonds of the Tacoma Gas & Electric Company, of which \$416,000 were due May 1, 1915. There was also outstanding an issue of Tacoma Gas Company Refunding Mortgage Bonds, due 1926, of which \$416,000 had been reserved to retire the previous issue when due. When the first mortgage bonds came due, however, they were extended and not retired. In this way a first lien was maintained on the underlying property, and the refunding issue was denied the position in respect to that particular property to which it was entitled. In order to prevent the recurrence of this situation, it is necessary that special care be taken in drawing up the provisions of the refunding mortgage.

¹⁹ The refunding and improvement bonds of the New York Central have ranked high from a financial standpoint, but are not a desirable type of bond. They derive their security largely from the general financial condition of the road, since their contract provisions must be considered as very weak from the bondholder's point of view. It is only because the road itself has been so strong that they have sold on a low yield basis.

Under the terms of this indenture, bonds may be issued up to three times the amount of capital stock of the company outstanding. Up to the first \$700,000,000 there are no restrictions on the manner of issue; beyond \$700,000,000, no additional bonds shall be issued except to refund prior debt, unless such further issue is duly authorized by the stockholders, and then only up to

Junior mortgage bonds. Second mortgage bonds, as the name indicates, are secured by a lien subordinate to that of the first mortgage. The same idea applies to the third mortgage, and so on. The order of priority that applies to assets in case of liquidation likewise applies to the earnings of the company. The first mortgage bonds have a first claim on earnings up to the amount of their interest, after which interest is paid on the second mortgage issue, and so on. So long as earnings are sufficient to meet all interest charges, there is no essential difference between these various issues. When earnings decline and the solvency of the corporation is in question, then the position of the various mortgages becomes a matter of vital importance. Not only will the first mortgage issue be the last issue to default, but, in the process of reorganization, the first mortgage bonds will be called upon to make the least sacrifices.

In determining the investment position of junior mortgage bonds, it is necessary to consider the value and the importance of the secured assets in relation to all claims outstanding, up to and including the issue under consideration. If the amount of of first mortgage bonds is very small as compared with the value of the assets and the earnings, the second mortgage bonds may, indeed, be well secured. Similarly, a third mortgage bond might be sufficiently well secured to warrant a high investment rating. There are, in fact, five successive mortgages on the property of the old New York and Erie Railroad, yet the total amount of all liens is so small in relation to the value and earnings of the pledged property that the junior bonds are, to all intents and purposes, as good as many straight first mortgage bonds. Instances of this nature, however, are the exception rather than the rule.

Under certain conditions, it is possible for a second mortgage to become, in fact, a first mortgage. Where there are two mortgages recorded on a given piece of property, a first and a second, the junior mortgage becomes a first mortgage when the original first is paid off. So long as the second mortgage remains, no subsequent mortgage with an equal or prior claim can ever be put on the property, regardless of whether the original first has been retired.

80 per cent of the cost of the work done on the property acquired. This issue is a lien, next to the lien of the N. Y. C. & H. R. R. consolidation mortgage, on a long list of properties, is secured by the deposit of some collateral, and is a first lien on certain leasehold rights. It appears to have a first lien on less than 300 miles of road.

Divisional bonds. Divisional bonds deserve some independent attention, although they differ but little, if any, from underlying first mortgage bonds. This term was first used in referring to the first mortgage bonds secured by a section, or division, of a railroad's property. At present, however, their counterpart is found in the public utility field. When a large holding company, such, for example, as the North American Company, or the Standard Gas & Electric Company, acquires subsidiary operating companies, the underlying bonds are frequently left undisturbed. If the holding company absorbs the old company through a purchase of all its stock, the old corporation may go out of existence. The underlying mortgage bonds of the operating company, in addition to being secured by a lien on the physical property as theretofore, are also assumed by the holding company.²⁰ Such bonds frequently are of the highest grade, and sometimes sell at higher prices than do the general mortgage bonds of the parent company itself.

Equipment obligations. Equipment obligations are likewise secured by a pledge of specific assets, but they have certain characteristics that require separate treatment. These obligations may take any of several forms, but generally represent loans secured by a lien on a specific lot of rolling stock.²¹ Equipment securities may be said to fall into two main classes: equipment trust certificates, involving a lease; and equipment bonds, based on a first mortgage on equipment. Obligations of the first type are said to be issued under the Philadelphia plan; those of the second type, under the New York plan. We shall discuss in some detail each of these plans.

Philadelphia plan. Under the Philadelphia plan, the railroad makes an initial payment on the purchase of a definite number of cars or locomotives. It does this by entering into a contract

²⁰The Union Electric Light & Power Company of Missouri absorbed the Missouri Edison Electric Company in September, 1903. The Missouri Edison Electric Company originally had outstanding \$3,400,000 First Consolidated 5's, due in 1927. Prior to 1903 these were secured by a closed first mortgage on the entire property, rights, and franchises of the company. Upon acquisition by the Union Electric Light & Power Company, these bonds, although still enjoying their old first mortgage lien, were assumed by it. The Union Electric Light & Power Company is now controlled through stock ownership by the North American Edison Company. We might refer to the M. E. E. Co. First 5's as underlying, or divisional, bonds of the parent company.

²¹For an excellent short treatment of equipment obligations, see Dewing, Arthur S., *Financial Policy of Corporations* (New York: Ronald Press, 1920), Vol. 1, Chapter V.

with a manufacturer, who agrees to build the cars in accordance with the road's specifications. As soon as the equipment is ready, an agreement is entered into with a third individual, known as a trustee, who acquires title to the property and leases it to the road. The trustee thus has title to the equipment, and, in order to finance such part of the purchase price as has not already been advanced by it, the railroad sells participation certificates based both on the security of the equipment and on that of the lease. Payments under the lease are so arranged that interest on all certificates outstanding can be met, and a certain amount of the principal retired, each year. It is usually provided that the entire principal amount shall be retired within a brief period—from ten to fifteen years. Upon receipt of the last payment, the lessor agrees to execute a bill of sale, giving to the road title to the property.

The railroad, under the lease, further agrees to keep the equipment in a proper state of repair and insured at all times; to put name plates on all equipment leased, whereby it may be identified as belonging to the trustee, not to the road; and to assemble all the equipment covered by the lease at one point on the road and deliver it to the trustee, should it default in any payments on the lease.

The chief advantage accruing to the holders of such certificates is that they are not required to go through all the formalities of foreclosure in case of default, in order to get possession of their security. This, coupled with the mere fact that the rolling stock of a road is vital to any sort of continuity of operation, puts the certificate holder in an almost impregnable position in case of default. Very rarely do the holders of such obligations suffer even the loss of current interest during receivership.

A further element of safety is woven into securities of this type on account of the increasing equity created each year through the retirement of part of the original issue. Under the Philadelphia plan, the lease provides for an annual rental sufficient to meet interest requirements and to provide for the retiring of part of the outstanding issue. The rate at which the issue is retired exceeds the rate at which the equipment is depreciating, so that each year the outstanding obligations are protected by a wider margin of equity. The same result may be attained under the New York plan, where the bonds themselves are issued to mature serially. Figure 9 will serve to illustrate this point. (See page 170.)

In this diagram the line AA' represents by year the amount of obligations outstanding. It is assumed, in the construction of AA', that an equal amount of bonds is retired each year, the entire issue being paid off by the end of the fifteenth year. The life of the equipment is placed at twenty-three years. The line BB', representing the value of the equipment each year, is constructed on the assumption that an equal amount of depreciation takes place each year. In other words, BB' represents

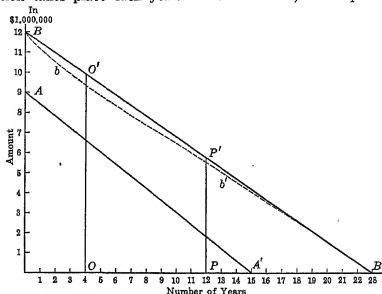


Figure 9—Diagram Showing Increasing Equity Behind Railroad Equipment Trust Certificates When Retired Serially.

the value after depreciation has been computed on the so-called "straight line" method. In practice, it is probable that a heavier depreciation takes place in earlier years than in later years, as represented by curve bb'. In either case, so long as the rate at which the obligations are retired exceeds the rate at which depreciation occurs, the margin of safety, represented by the distance between the two lines increases. This spread is seen by drawing lines OO' and PP' at the fourth and twelfth years, respectively. A cursory inspection indicates a substantially wider margin of safety at the twelfth year. This principle of amortization is widely used in corporation and mortgage financing. Its efficacy depends on a proper estimate of the rate at

which the pledged assets depreciate, and on the determination of a more rapid rate of amortization.

New York plan. Under the New York plan, as opposed to what has just been designated as the Philadelphia plan, the road acquires immediate title to the rolling stock and deeds it back to the trustee under a mortgage agreement. Equipment bonds are then issued by the road, which participate in this mortgage in the same way that any mortgage bond participates in the deed of trust. In this case, the equipment bond is based on a chattel mortgage instead of on the customary mortgage based upon land and the improvements affixed to it. Because, under the lease plan, the railroad does not acquire even a fraction of the title until the whole obligation is paid, this plan has proved to have unusual strength and has been used almost exclusively in recent years. The New York plan is of academic interest only.

How equipment obligations are rated. As a class, equipment obligations constitute the safest kind of corporate security, and almost always sell at higher prices than the other bonds of the road. In fact, they rarely reflect, to the same extent as do other types of securities, the financial condition of the issuing road. The equipment obligations of weak roads, in fact, often sell at the same yields as the premier securities of other corporations. The following table, arranged by Professor Dewing, will serve to illustrate the superior position occupied by railway equipment obligations:²³

AVERAGE YIELDS OF VARIOUS CLASSES OF
RAILROAD OBLIGATIONS

(Large Selections of Obligations of Same Systems)

	<i>Equipment Obligations</i>	<i>Premier Bonds</i>	<i>Junior or General Bonds</i>
March, 1916.	4.31	4.61	5.29
July, 1925.	4.97	4.97	5.50
October, 1929.	5.50	5.08	5.85

Note: Comparisons should be made with caution because of short maturities among the serial equipment issues. The yields of such maturities will be relatively high in a year like 1929, when commercial paper rates were high in relation to long-term bond yields, but the reverse in a year like 1934.

Collateral trust bonds. We have already described collateral trust bonds as bonds secured by a lien, not on physical assets, but

²³Dewing, Arthur S., *Financial Policy of Corporations* (New York: Ronald Press, rev. ed., 1934), p. 90.

on securities, either stocks or bonds, deposited with a trustee as collateral. This type of bond is used by holding companies in the public utility field, although it is by no means confined to that area. In fact, they were first used on a large scale by the railroads, in order to combine into a single issue of marketable size a variety of underlying bonds.

Independent collateral as security. In analyzing the investment merit of collateral trust issues, we must inquire into both the credit of the issuing corporation and the value of the pledged collateral. The strongest type of collateral trust bond would be one whose collateral securities possess a market quite independent of the fact that they are deposited as collateral or are connected in any way with the issuing corporation.²³

Stocks and bonds of subsidiary companies as security. Somewhat less desirable as a class are collateral trust bonds secured by a deposit of the securities of subsidiaries operated by a parent company. In such instances there is lack of diversification, for the success of the subsidiaries, as a rule, is closely linked with the success of the parent company. When financial reverses affect the latter, the pledged collateral is likewise affected. Yet the subsidiaries may still have an independent value, and if the collateral consists of what were originally sound mortgage bonds, the collateral issue may be considered well secured.

An example of the second type of bond would be the secured 4's, running serially to 1964, of the Pennsylvania Railroad Company. This issue is secured by deposit of the shares of stock of various subsidiary railway lines making up the system. Another example is the former issues of American Telephone & Telegraph collateral trust bonds. These bonds were secured by the pledge of the stocks and bonds of a large number of subsidiary companies.

Where the collateral security offered is the common stock of subsidiaries of the holding company selling the bond issue in question, or even of independent companies, and these stocks are already subject to a heavy load of bonds and preferred stocks put out by the operating companies, a weak situation exists.

²³ An unusually good example is that of the twenty-two series of collateral trust bonds which the Electrical Securities Corporation, a subsidiary of the General Electric Company, had outstanding at the close of 1926. These issues were secured, for the most part, by the pledge of high-grade and easily marketable public utility bonds. At present, this company has no issues outstanding, having called all issues in 1928.

When financing of this nature is undertaken with the idea of giving stocks the status of bonds by depositing them as security for a collateral trust issue to be sold to the public, the motives of the bankers may be questioned. A conspicuous example of this type of financing is found in the former collateral trust bonds of the Chicago, Rock Island & Pacific, which were secured by the stock of the Chicago, Rock Island & Pacific Railway Company. Upon foreclosure, the holders found that their bonds were bonds in name only. Their real security consisted of the stock of the operating company, before which there were many prior obligations. Where the collateral pledged is in the form of stock, it is all the more important to test its real value. This may be done in part by determining the earnings available per share, the dividends paid, and the extent to which the operating property is already burdened with prior obligations. If the operating company whose stock is pledged as collateral for a bond issue has no bonds or preferred stock outstanding, the collateral trust bonds may constitute virtually a first mortgage on the assets of the operating company. On the other hand, if the company whose stock is pledged already has outstanding a substantial amount of bonds and preferred stocks, the value of the common as security for the collateral trust issue is lessened. Bonds secured by stocks of the same enterprise, whether of the same company that issues the bonds or of a closely allied operating company, are the least desirable of all the various types of collateral trust issues. The ultimate fate of such bonds in the reorganization of the New York traction companies is conclusive evidence of the very unsatisfactory nature of this type of security.

Consider, for example, the history of the Interborough-Metropolitan Collateral Trust 4½'s, of which there was formerly outstanding \$67,825,000. These bonds were secured by a pledge of \$33,912,800 par value of stock of the Interborough Rapid Transit Company. Interest on these bonds was defaulted on April 1, 1919. A rapid decline took place in their market value, the low quotations for 1921 and 1922, respectively, being 8 and 8½. In the reorganization that followed, effective May 1, 1922, these bondholders were given the option of: (1) subscribing to the 10-year 6 per cent gold notes of the new Interborough Rapid Transit Company at par and accrued interest, in which case they received in addition 5.25 shares of the Interborough Rapid Transit Voting Trust Certificates and 5 shares of the Fifth Avenue Bus Securities Corporation Voting Trust Certificates; or

(2) surrendering 60 per cent of their bonds and receiving 2.1 shares of the Interborough Rapid Transit Voting Trust Certificates and 2 shares of the Fifth Avenue Bus Securities Corporation Voting Trust Certificates.

Summary. We have discussed in some detail the more important types of secured issues. It appears that no definite rules of analysis can be formulated here that will apply to all cases; but we are led to the conclusion that, as a general proposition, the highest type of secured issue is one where the amount of the issue outstanding is properly limited, and where the property has a high value in relation to the total amount of bonds outstanding. Closed first mortgage bonds and divisional bonds, as well as equipment obligations, come under this classification. These latter securities are found to be unique, in that the property by which they are secured is mobile and of distinct value to the issuing corporation. For this reason the holders thereof are placed in a strategic position in case of default. Open end issues may also represent a highly desirable type of security, where they are amply protected by the presence of a strong contract restricting the issue of subsequent bonds to a reasonable amount. On the other hand, bonds secured by a first mortgage on part of the property, and a general, or junior, lien on the balance, require a very close examination before their real position may be determined. Collateral trust bonds likewise vary widely in the matter of security.

Whatever may be said of the desirability of secured issues as a class, it is, nevertheless, important that each issue be considered on its own merits. A secured bond, after all, is no better, when the corporation gets into financial difficulties, than the property pledged as security, and it is at such times only that the bondholder is really concerned with the kind of bond he has.

Bonds Secured Primarily by Credit

The fundamental distinction between secured and unsecured bonds is emphasized by a reference to the document under which each type of bond is issued. The term "indenture" may well be used for both the contract under which mortgage bonds are issued and the instrument accompanying unsecured issues. In the first case, however, the indenture contains a "mortgage deed" as well as all the other covenants with the bondholders. In the latter case, the instrument is simply an agreement, sometimes called the bond contract, in which the corporation agrees to undertake certain acts for the benefit of the bondholders. Unsecured bonds resemble secured bonds in this respect: all covenants are contained in the trust agreement running to one or more trustees for the benefit of all the bondholders.

Lacking a definite pledge of property, either tangible or intangible, as a guaranty that the bond contract will be carried out, unsecured bonds, or bonds issued against the general credit of the corporation, must depend ultimately for their value on the earning capacity of the corporation. The only merit of a mortgage security lies in the preference it gives over other creditors. That is, the mortgage feature of a bond has value in the relatively superior position it gives the holder of the bonds if it ever becomes necessary to distribute the assets of the corporation as a result of financial difficulty. So long as earnings are adequate, it is a matter of legal distinction only whether the bond is covered by a lien on specific property or whether it is covered merely by the promise of the corporation to pay.

Civil loans. Perhaps the best examples of bonds secured only

by the credit of the obligor are found among civil loans. Bonds of the United States and of the various state governments of our country are never secured by the pledge of specific assets. The same may be said of most municipal issues. Such bonds are issued solely on the faith that the issuing unit will have the ability and inclination to pay them when due. In rare instances only do municipalities issue bonds secured by the pledge of definite property, and, where this is done, the faith and the credit of the municipality may not be pledged, for such bonds are likely to be specifically payable out of the revenues of the pledged properties.

This is true also of bonds issued by foreign governments. It would indeed be a blow to the prestige of any large nation to be required to give a mortgage on its assets in order to secure a loan. Where some sort of security is required, such as a pledge of customs receipts, it will be found that the borrower is a small country or is in a state of political instability.

Receivers' certificates. Another type of credit obligation is that issued by the receivers of a corporation. When a corporation passes into the control of the court as a result of actual or threatened default, it frequently becomes necessary that cash be raised in order to continue current operations. The court will authorize its agents or receivers to issue short-term notes known as receivers' certificates. These certificates may be said to rest on the physical property of the company as well as on its general credit, although they are not accompanied by a mortgage of the corporate property. They depend for their strength on the fact that the receiver represents all parties and hence the securities he issues may have priority over mortgage bonds. Their exact priority is usually fixed in the same decree of the court that authorizes the issue. (If the corporation is administered by trustees in bankruptcy instead of court of equity receivers, trustees' certificates may be issued.)

Receivers' certificates are usually issued for a short period to meet temporary needs and are paid off or refunded before the property passes from the jurisdiction of the court.¹ As a rule,

¹ Generally, receivers' certificates are paid off with money received from junior security holders at the time of reorganization, and the holders are not asked to participate in the reorganized company. Rarely are they asked to take new securities. In the preliminary reorganization plan of the Atlanta, Birmingham & Atlantic Railroad, for example, the holders of \$5,000,000 of receivers' certificates were offered 40 per cent of their claim in new first and general 30-year bonds at 90, and 60 per cent in cash. In the final reorganization plan they were com-

therefore, this type of obligation must be accorded high rating for investment purposes.

Assumed bonds. Where a small subsidiary corporation is merged with a larger corporation, the obligations of the merged company become those of the acquiring company. At the time of the merger the larger corporation may formally agree with the bondholders, or with the old corporation, to be responsible for the bonds. This, however, is not necessary, for if the smaller corporation passes out of existence when its assets are acquired by the larger corporation, the latter automatically assumes responsibility for the bonds of the merged company. In the event that the assumed bonds were previously secured by the pledge of specific assets, this claim continues, and such bonds may be said to enjoy a double security, the first arising from a general claim against the credit of the acquiring company and the second, from a pledge of specific assets now acquired, subject to the bondholders' lien, by the larger company.

Assumed bonds are by no means rare in American finance and are particularly common among railroad securities. Almost all the larger systems have some assumed bonds in their capital structure as a result of reorganization or consolidation. In reorganizations, underlying or divisional bonds are often assumed by the new corporation.² The fact that so many of our present railroad systems have been put together by consolidation of divisions has also given rise to many issues of this nature.

Guaranteed bonds and stocks. Somewhat akin to assumed bonds are guaranteed bonds. Such bonds, while implying a double obligation, that of the issuing corporation itself as well as that of the guaranteeing company, may or may not be secured by the pledge of specific assets. The most common form of the guaranty arises when a larger corporation leases a small corporation and guarantees under the terms of the lease a rental sufficient to pay interest on bonds of the lessor corporation, and frequently dividends on the stock. In other cases the guaranty is in the form of a direct contract with the guarantor and is indorsed on the bond itself.³

pelled to accept income bonds with a subordinate lien. Such treatment as this is, however, unusual.

²The present Erie road has in its capital structure some of the original first mortgage bonds issued as early as 1847.

³The Southern Pacific Railroad guarantees the bonds of the Houston, East & West Texas Railway by the following indorsement on each bond: 'For value received, the Southern Pacific Company hereby guarantees uncondi-

Where the stock of the leased corporation is also guaranteed by the lessee company, it must at once be classed as a fixed obligation and not as a proprietorship security. Guaranteed stocks assume most of the characteristics of bonds and are bought by the same class of investors which buys bonds.

The guaranty of dividends on the stock of leased companies may apply to its preferred stock or to both preferred and common. In fact, after the guaranty has been effected, by means of establishing a rental under the terms of the lease sufficient to pay necessary expenses and a stated rate of dividend, the distinction between preferred and common stocks is, for all practical purposes, eliminated.⁴

Guaranteed bonds are not so strong, legally, as assumed bonds. The holder of guaranteed bonds has the double obligation, it is true, of both the issuing and the guaranteeing company. However, in the event of failure on the part of the guaranteeing company to meet payments under the contract, the result of attempted enforcement will be, at best, to throw the corporation into the hands of receivers who, ordinarily, will repudiate the guaranty if the leased property is not a paying proposition. The holders of guaranteed bonds must then proceed to establish the extent to which they have been damaged by the failure of the guaranteeing corporation to carry out the contract, before they can be in the position of judgment creditors. The holders of assumed bonds, on the other hand, are in precisely the same legal position as the bondholders of the corporation assuming the bonds. Assumed bonds are a direct obligation of the assuming corporation and are on a parity with other valid debts. It is necessary, therefore, in determining the investment position of guaranteed issues, to study not only the credit of the guaranteeing company but also the credit status of the obligor company—

tionally the punctual payment of the principal and interest at the time and in the manner therein specified."

"There are abundant examples of guaranteed stocks in American railroad finance. The New York, New Haven & Hartford, under the terms of a 99-year lease, agrees to pay a rental to the Providence & Worcester Railroad Company sufficient to equal interest on its bonds, organization expenses, and 10 per cent on its capital stock. The Cincinnati, Hamilton & Dayton Railroad, under a perpetual lease, guaranteed principal and interest on the bonds of the Dayton & Michigan Railroad Company, as well as a rental sufficient to pay 8 per cent on the preferred and 3½ per cent on the common stock of the company. This lease was later assumed by the Toledo & Cincinnati Railroad Company, which is a subsidiary of the Baltimore & Ohio. Dividends are guaranteed on the stock of the Northern Railroad Company (of New Hampshire) by the Boston & Maine.

the earning power and the strategic importance of the leased property to the lessee company.⁵

Joint bonds. Joint bonds are very similar to guaranteed bonds, except that there is a joint guaranty by several corporations to pay the interest and the principal of the bonds. Such issues are ordinarily the result of a corporation's decision to undertake the building of structures, branch lines, or terminal facilities, which are to serve several companies jointly. It is a common practice for such projects as larger terminals, wharves, docks, and bridges, which are to be used by several corporations, to be financed jointly by all the companies interested. Usually a small corporation is formed solely for the purpose of taking title to the property and operating it. This company then issues bonds to secure part or all of the funds necessary to acquire the property. Such bonds, however, are also guaranteed by the various companies which use its facilities. The companies generally divide the stock of the terminal company and enter into lease agreements for the use of its facilities, each company paying rent in proportion to its use of the property.

These bonds, where they are accompanied by a mortgage on the terminal property, are secured both by the credit of the participating companies and the property itself. For example, the Boston Terminal First Mortgage Gold 3½'s are not only a lien on the South Station at Boston, the train sheds, and about thirteen miles of track, but are further secured by lease, the New York, New Haven & Hartford, the Boston & Albany, the Old Colony, and the Boston & Providence railroads, each being jointly liable for any deficiency in the case of foreclosure of the bonds.

The investment strength of such bonds will depend in part on the value of the property itself and also on the character and multiplicity of the guarantors. The strategic importance of the property is significant, to be sure; but, in the event of failure of the lessor companies, ordinarily the bondholders would have on their hands property with little or no income. Therefore, we are justified in considering bonds of this nature in part as general credit bonds. Where secured by the pledge of property, the underlying assets may be of such special nature as to have little or no independent value.

⁵ There is often a strong temptation where leases are unprofitable to find some way to break them, especially if the lessee corporation is in a weak financial position. On the other hand, where the leased property is profitable or occupies a position of strategic importance, the lessee corporation may go a long way to avoid any default in the provisions of its guaranty.

Investment position of debenture bonds. The most important class of straight credit obligations which are in no way secured by direct or indirect pledge of property is known as debenture bonds. Bonds of this nature are merely promises to pay a certain sum of money at a given time. In fact, they do not differ materially from promissory notes, except that they are generally issued under an indenture, as previously described.⁶

In the purchase of debenture bonds, therefore, one must look entirely to the earning power and credit position of the corporation for the payment of the interest and the ultimate return of the principal. In the event of failure, the debenture bondholder will find that his claims are junior or subordinate to those of all the secured bondholders. Furthermore, if the corporation fails to carry out its part of the bond contract, the debenture bondholder does not have the right to foreclose, a right which often proves of real value to the secured holder in times of financial difficulties.

With corporations which have no secured issues outstanding, the position of the debenture bonds is improved, but even here the debenture issue does not have the same status as a mortgage bond. A debenture issue, even though it represents the only item of funded debt on the balance sheet of the corporation, may participate ratably with the other unsecured creditors only in the assets of a liquidating corporation, whereas the first mortgage bondholder enjoys a prior claim in so far as the assets specified in the mortgages are concerned. That is, mortgage bondholders have the privilege of foreclosing in the event of failure, of forcing a sale of the pledged property, and of bidding in the property, if desirable, for their own interests. Furthermore, such property is not attachable by the other creditors.⁷ Also, where the pledged assets are insufficient to meet the claims of the secured bonds, these bondholders have a further claim which participates equally with that of the unsecured holders in the remaining assets.⁸

⁶The student will do well to refer to the agreement under which the 6 per cent notes of the American Power & Light Company were issued. See Gerstenberg, C. W., *Materials of Corporation Finance* (New York: Prentice-Hall, Inc., 5th ed., 1924), p. 291. This agreement should be compared with the corporation mortgage in order that the fundamental difference between secured and debenture bonds may be seen.

⁷Except in respect to specially created claims like receivers' certificates, or minor claims which are given priority under the Federal Bankruptcy Act, such as taxes and certain wages.

⁸The following simple example is given to show the exact order of precedence

Position of unsecured bondholders in event of reorganization. As a result of this situation, the unsecured bondholders usually fare much worse in cases of reorganization than do the secured bondholders. The latter hold the upper hand, so to speak, in that, if the reorganization plan does not satisfy them, they may always foreclose and assume title to the fixed assets of the concern by bidding in the property. Should other buyers appear at the foreclosure sale and bid more than the amount of the secured claims, the secured bondholders are entitled to 100 per cent of their principal and all interest in arrears before anything can be paid to the remaining creditors. Moreover, where other bidders fail to appear, or where they bid less than the amount of secured bonds outstanding, a purchase may be made by the bondholders themselves, who naturally will bid, by turning in their bonds up to the amount of the purchase price. In such cases, therefore, it is not necessary that any cash should be put up in order to acquire the property.

Chicago, Milwaukee & St. Paul reorganization. To cite a specific example of the manner in which different classes of bond-

for the claims of the various creditors of a corporation in case of failure and liquidation.

The balance sheet of the corporation at the time of failure was as follows:

<i>Assets</i>		<i>Liabilities</i>	
Plant and Equipment . . .	\$1,000,000	Common Stock	\$500,000
Inventories	400,000	Preferred	300,000
Accounts Receivable . . .	250,000	First Mortgage Bonds . . .	500,000
Cash	50,000	Debenture Bonds	400,000
Deficit	300,000	Accounts Payable	300,000
	<hr/>		<hr/>
	\$2,000,000		\$2,000,000

Let us assume that the affairs of the corporation are wound up and that the assets are liquidated. The following amounts, we shall further assume, are realized from the various assets in liquidation:

Plant and Equipment . . .	\$450,000
Inventories	100,000
Accounts Receivable . . .	200,000
Cash	20,000 (after allowing expenses of liquidation)

In view of the fact that the plant and equipment were pledged as specific security for the mortgage bondholders, the entire \$450,000 realized therefrom must be applied to their claim. So far as the \$50,000 remaining unsatisfied is concerned, the mortgage bondholders will be in the same position as the other unsecured creditors. The remaining \$320,000 must be prorated over the unsecured claims, amounting in all to \$750,000 (\$50,000 first mortgage bondholders, \$400,000 debentures, \$300,000 accounts payable). This would leave the debenture holders with 42% cents on the dollar. The first mortgage holders, however, will receive in all \$450,000, plus 42% per cent of \$50,000, or \$471,333. This is equivalent to 94.3 cents on the dollar.

holders fare in case of failure and reorganization, we shall again consider the Chicago, Milwaukee & St. Paul reorganization in 1925. Here we find that \$181,370,400 of underlying bonds were left undisturbed. Bonds with relatively poor security, such as the First and Refunding "A's" and "B's," and also the various issues of unsecured bonds were required to take, for each \$1,000 bond of the old company turned in, \$200 par value, new 50-year 5 per cent mortgage gold bonds and \$800 new 5 per cent adjustment mortgage bonds.⁹ These latter bonds are known as income bonds and represent a contingent claim in respect to interest rather than a fixed claim.¹⁰ The new 50-year mortgage bonds were quoted at about 82 at the time the reorganization plan was finally agreed upon, and the adjustment mortgage 5's were quoted at about 55. The cash value of the securities received in exchange for a \$1,000 bond of the less secured classes was thus about \$600.

Virginia Carolina Chemical reorganization. Another pertinent illustration of the relative position of secured bonds as compared with unsecured issues in times of difficulty is found in the case of the Virginia Carolina Chemical reorganization, consummated in 1925. Here the old first mortgage bondholders received, for each \$1,000 bond, \$595 in cash and \$510 in prior preferred stock of the reorganized company, which had a market value at the time of reorganization of about \$93 per share, thus giving them the equivalent of a total cash return amounting to about \$1,027, an amount actually in excess of the par value of their claims. The old 7½ per cent 15-year debentures, on the other hand, received, in the reorganization, no cash, \$1,225 new participating preferred stock, and 20 shares of common. The preferred had a market value of about \$46 per share and the common of about \$10 a share at the time of reorganization. The debenture holders, therefore, received the equivalent of \$763 in cash for each \$1,000 bond of the old company.¹¹

Desirability of unsecured bonds as investments. The fact that the debenture bonds of a corporation generally are at a disadvantage in case of reorganization should be clearly borne in mind when purchasing unsecured corporation bonds, for, in the

⁹See *Commercial and Financial Chronicle*, Vol. 121, p. 2516, for a complete analysis of the plan as finally agreed upon.

¹⁰See p. 186 for a complete discussion of income bonds.

¹¹For full details of reorganization see *Commercial and Financial Chronicle*, Vol. 121, p. 853.

purchase of bonds, safety of principal is of extreme importance. The opportunity for profit through appreciation in the value of an investment bond is not particularly great. On the other hand, if the company meets financial reverses, losses may be substantial. The additional yield on debentures, therefore, must be considered as a premium for the extra risk involved in such issues. The natural question is: Does this additional return compensate for the chances of loss in principal and interest which such bonds as a class suffer? It is the writers' opinion that the purchase of debentures should be confined to those of the strongest companies, and even here one's holdings should be carefully watched. A study of almost any important reorganization will show conclusively that the debenture bondholders occupy a position inferior to that of the secured bondholder, and that they generally suffer a reduction in the principal value of their holdings or are required to take preferred stock in lieu of their contract claim in the ultimate plan or reorganization. Some corporations, most frequently in the industrial field, have no funded debt other than a debenture issue which is of small size. Such an issue, provided that it enjoys proper restrictions against the incurring of later debts, may rank extremely high, particularly where the history of the company shows conservative financial policies.

Protection of unsecured issues: restriction against new bonds. On account of the relatively weak position in which the debenture bondholder is placed, one frequently finds collateral provisions in the bond contract or indenture which are designed to give added security to the holder of such bonds. Such special features aim for the most part to prevent any subsequent weakening of the debenture bondholders' present position and are not unlike the covenants sometimes found in the indentures of secured issues.¹² For instance, a clause is frequently inserted to the effect that no other bonds may be subsequently issued unless the debenture holder is given equal security therewith.¹³ The effect of such a provision is, of course, favorable to the purchaser of the bond, in that it prevents the corporation from later mortgaging a part, or all, of its assets to the disadvantage of the de-

¹² As previously indicated, see Chapter 7.

¹³ New York, New Haven & Hartford Convertible Debenture 6's, 1948, as well as several other debenture issues of this road, had such a clause. Thus, when it became necessary, in 1922, to put out a large first and refunding issue to refund certain government obligations and bonds then falling due, the old debentures were required to be equally secured under this mortgage.

benture holder. Weak as the position of the unsecured creditor is, it becomes weaker where the corporation's assets are subsequently mortgaged to new creditors with a prior lien on the properties. The added cash obtained from the sale of the new bonds may fail to compensate for the lowered position which the debenture holder is required to take in the capital structure of the corporation. In theory, provisions such as the preceding are sound. In practice, however, their efficacy is sometimes doubtful. Frequently the corporation undertakes to finance a program of permanent improvements by means of current bank loans. After this continues for a period, the corporation's current liabilities, represented in part by bank loans, become so large that it is forced to fund these into an issue of bonds. Usually at such times the corporation is forced to bring out a mortgage loan, on account of its credit position, and consent of the debenture holders is given, not from desire, but from necessity. It sometimes happens that a corporation gets into financial difficulties, for one reason or another, from which it may emerge if it can secure additional funds. On account of its then low stage of credit, the only means of borrowing lies in a first mortgage issue.

Maintenance of cash position by restrictions. In some indentures restrictions are set up against the payment of dividends on the corporation's stock issues, where such payment reduces the cash ratio of the company below a certain point.¹⁴ A similar result may be accomplished by a provision that net current assets always be maintained at a certain percentage of the bonds outstanding, or that current assets be maintained at a certain ratio in respect to current liabilities. The purpose of such a provision is to assure the unsecured bondholder that sufficient cash will always be available to pay current interest on the bonds, to provide for principal at maturity, and to guard against any ill-advised expansion by means of bank loans. In so far as such covenants prevent the corporation from using cash for dividend purposes when such cash should remain in the business, they are sound. On the other hand, when earnings decline, or when losses appear, it takes more than a mere covenant in an indenture to produce net quick assets. For this reason even such provisions are powerless to protect the debenture holder in times of financial stress.

¹⁴ See Jones & Laughlin mortgage in Gerstenberg, C. W., *Materials of Corporation Finance* (New York: Prentice-Hall, Inc., 5th ed., 1924), p. 210.

Sinking fund provisions. The inclusion of sinking fund provisions is another method of strengthening unsecured bonds. Where the retirement of an issue on a serial basis is called for, the same end is accomplished. In each case the corporation is required either to set aside a certain amount of cash out of earnings each year for the purpose of building up a sinking fund to retire the bonds at maturity, or to retire a certain amount of the bonds annually. In this way the equity behind the issue is increased regularly. Year by year the issue becomes better secured, either through a growth in the sinking fund assets or through a reduction in the total amount of the issue outstanding.

Of course, with sinking fund bonds, much will depend on the manner in which provision is made for the sinking fund. It is desirable, from the bondholders' standpoint, that the amount paid into the sinking fund be a definite and predetermined sum for at least a minimum amount. Additional sums may be made contingent upon earnings in order to avoid financial embarrassment through excessive sinking fund requirements. Where payments into the fund are based solely on a percentage of earnings, there is no assurance that there will be any accumulation. The most common and generally desirable form of sinking fund is the purchase fund, which requires that the sums be used as set aside to retire the bonds that are being protected. This procedure prevents unwise investment or the use of funds for general assets of the corporation that will not provide cash for the bondholders when needed.¹⁵

Value of such collateral provisions to bondholder. These are the more important collateral features which are frequently written into the indenture under which debenture or unsecured bonds are issued.¹⁶ Although such protective covenants, or

¹⁵ See p. 685 for treatment of, in respect to municipals.

¹⁶ A good summary of such restrictions may be found by studying the indenture under which the 7½ per cent bonds of E. I. du Pont de Nemours Co., due in 1931, were issued. Briefly the provisions were: (1) The company will not place any liens upon any of its property without ratably securing these bonds therewith. (2) The company will at all times maintain net current assets equal to not less than 150 per cent of the principal amount of bonds then outstanding. (3) The company agrees not to pay dividends upon any of its capital stock, if thereby the amount of its total current assets shall be reduced to less than 125 per cent of the company's current liabilities plus the amount of bonds outstanding. (4) Certain restrictions are set up against the sale or distribution of certain stocks and bonds of the General Motors Securities Co., held by the du Pont de Nemours Co.

modifications of them, are sometimes found in indentures of mortgage, or secured, bonds, they are less common than in those of debenture bonds. With regard to the value of these various safeguards, opinions differ. Probably the most effective provisions are those which prevent the issuance of bonds at a subsequent date with prior claims, or the payment of dividends when the cash position of the company is thereby jeopardized. It may be said in respect to all such features, however, that they fail to reach the real problem. When the management of a corporation is unable to produce earnings, assets are dissipated and the unsecured bondholders' position becomes dangerous. When earnings are satisfactory, the existence of protective features is unnecessary. The investor, therefore, will do better to study the prospects and financial condition of the company than to rely too much on the various provisions in the indenture of an unsecured bond.

Income or adjustment bonds. Income or adjustment bonds are usually issued as a result of financial reorganization and are offered to the less advantageously situated security holders and creditors of the old company in exchange for their claims. Adjustment or income bonds may be unsecured, but they are often secured by a junior lien on certain property of the corporation. Even where they are secured in this way, such issues must, nevertheless, be considered essentially as bonds secured by credit and earnings, for interest thereon is not in the nature of a fixed and definite claim but is made contingent upon earnings.

The Chicago Great Western Railway Company General Mortgage Income $4\frac{1}{2}$'s due 2038 furnish an example of this type of bond. Interest on these bonds is cumulative whether or not earned up to a total of $13\frac{1}{2}$ per cent. The bonds were issued in reorganization in partial satisfaction of a previous issue of first mortgage bonds. They are secured by a lien subordinate to that of the new first mortgage bonds issued at the time of reorganization. The position of these bonds is best understood by noting that their interest claim follows first mortgage interest and sinking fund and a "capital fund" charge to meet the need for minor asset purchases.

Another example, drawn from the real estate field, is the Stevens Hotel Corporation Mortgage Income 5's of 1956. The interest on these bonds is noncumulative. Net earnings after certain reserves stipulated in the indenture but before depreciation is available for interest and sinking fund on these bonds,

The reserve provision permits the use of some earnings for capital additions. Unlike most sinking funds, this one is on a parity with, rather than subject to, the interest claim. One fifth of the "available net earnings" is devoted to sinking fund and four fifths to interest until the latter equals 5 per cent in any given year. If any further net earnings remain after this point, one third of such surplus is devoted to sinking fund and the rest to general corporate purposes. The mortgage is on all real estate subject only to the prior lien of a first mortgage of not exceeding \$1,000,000, in the event the directors determine such an additional mortgage is necessary and approval is granted by a majority of the common stock. Since no such lien is outstanding, these income bonds are a first mortgage, a not unusual situation in real estate reorganizations but rare in railroad finance.

The greatest objection to income bonds arises from the uncertainty of interest payments. The determination of net earnings is partly dependent on accounting practice. Thus, whereas gross earnings and direct operating expenses may be determined precisely, net earnings are dependent on managerial policies with respect to maintenance and sometimes with respect to depreciation. Both items involve judgment, and the management, generally representing the common stockholders and invariably concerned with rebuilding the financial standing of the corporation, may find it advantageous to charge heavy depreciation and to treat debatable capital items as expense, thus keeping earnings down for a considerable period. Such a policy really permits the property to be built up at the expense of the bondholder.¹⁷

¹⁷The Central of Georgia Railway, for example, did precisely this. With three issues of income bonds outstanding, the management for years charged heavy depreciation and virtually rehabilitated the road out of earnings. As a result, when earnings were so published as to show income available for the interest on the bonds, there was sufficient also to pay dividends on the stock.

Special Types of Bonds

There are several types of bonds, or, perhaps better, special features sometimes found in the bond contract, which deserve more than passing attention. Inasmuch as these special features could not logically be treated as though they were particularly related to either secured or unsecured issues, it was considered advisable to reserve discussion of them until the present chapter.

Callable bonds. The first feature that will be treated more fully at this point pertains to callable bonds.¹ The presence of this clause may be found in a bond contract for any type of bond. Thus we may find a debenture bond, a first mortgage bond, a convertible bond, or almost any type of bond with the "call" feature incorporated in the indenture under which the bonds were issued. The call feature may be described as a clause contained in the indenture which gives to the issuing corporation the right to redeem—that is, to pay off—a portion or all of the bonds issued thereunder before maturity. The conditions under which this may be done will vary with different bonds, although the general features surrounding the call privilege are fairly well standardized. The corporation is customarily required to give notice to the bondholders of its intention to exercise its right a certain number of days in advance of the date on which payment is to be made, such notice usually being in the form of advertisements appearing in specified newspapers. This method of noti-

¹The term "redeemable" bonds is frequently used in describing such a security and conveys the same meaning. Where only a part of an issue of bonds is called, and the bonds to be called are drawn by lot, the bond may be called a "drawn" bond.

fication is necessary, since it is obviously impossible to notify the holders of coupon bonds by mail. Such bonds are transferable by delivery, and therefore no information as to the owners appears on the books of the corporation. In most cases the call privilege may be exercised at certain specified times only, usually at interest dates. The corporation is generally required to pay somewhat more than par if it elects to call its bonds; that is, bonds are callable, not at par, but at a figure slightly in excess of par. The amount of this premium will naturally vary according to the circumstances involved, but does not generally exceed 5 per cent of the par value of the bond. A typical example of the manner in which such provisions are often stated may be found in the Jones & Laughlin mortgage, which reads as follows:²

In case the Company shall desire to exercise such rights to redeem and to pay off such entire issue of bonds, it shall advertise in two daily newspapers of general circulation, one published in the Borough of Manhattan in the City of New York and one published in the City of Chicago, Illinois, at least once a week for four successive weeks (the first publication to be not less than thirty days, and not more than forty days, before the date of redemption specified in such notice), stating that the Company has elected to redeem and pay off all of the bonds, and that on such interest payment date there will become and be due and payable upon each of said bonds at the financial agency of the Company in the Borough of Manhattan in the City of New York the principal thereof, together with the premium as aforesaid and accrued interest to such date. A similar notice shall be sent by the Company through the mails postage prepaid at least thirty days prior to such redemption date to the registered holders of bonds whose addresses shall appear upon the transfer register.

Advantages to corporation of callable bonds. From the corporation's standpoint, the right to redeem or call all or part of an issue of bonds has several advantages. Consider first a corporation which has in its bond contract a provision requiring the setting aside annually of a certain sum of money in a sinking fund for the purpose of retiring its bonds at maturity. The proper investment of such a fund naturally creates a problem. It is generally agreed, however, that no better investment for sinking fund purposes could possibly be found than the bonds of the corporation itself. And, where the right to redeem or call its bonds at a definite price is given to the corporation, an adequate supply of such bonds for the fund is automatically created. Another corporation to which the call feature proves an advantage is one which originally started in a modest way

² Gerstenberg, C. W., *Materials of Corporation Finance* (New York: Prentice-Hall, Inc., 5th ed., 1924), p. 222.

and at some time in its development put out a closed issue of first mortgage bonds with an after-acquired clause in the bond indenture. We have already seen that the effect of such a clause is to cause all subsequent additions to the property account to be included under the senior mortgage. Such a corporation is obviously at a disadvantage if it desires, at a subsequent date, to do further borrowing. It cannot give another first mortgage, even though from the standpoint of values the property would warrant this procedure. Additional borrowing, therefore, must be undertaken on the basis of junior or debenture issues, which require higher interest rates and consequently heavier fixed charges. If the underlying issue of bonds is callable, the corporation is able to retire it and to engage in a more comprehensive financial program. Where a corporation consists of a number of consolidated properties, or where its growth has resulted in a number of different issues of bonds, and consequently, a complex capital structure, the presence of the call feature in its bond contracts enables it to effect greater simplicity by calling its outstanding bonds and issuing one consolidated issue.

As a rule, however, the essential gain to the corporation from the call feature lies in the reduction or elimination of fixed charges which may result from calling the bonds. Immediately after the war, for example, corporations of the highest grade were unable to borrow money at less than $6\frac{1}{2}$ or 7 per cent, regardless of the type of security they might offer. Such a situation was almost sure to be temporary, yet it put the corporation which had to borrow, either for expansion or refunding purposes, in a difficult position. It is true that a corporation of this kind might have borrowed by issuing short-term notes with a high coupon rate of interest; but such action would result in an inflexible maturity date in the near future, which might require further financing on disadvantageous terms and with additional banking fees. A better solution for conditions of this nature lies in the issue of bonds with a high coupon rate, with the right reserved to the corporation to redeem all or part of the issue on the terms customarily worked out in the indenture under which callable bonds are issued.

The same situation may at any time present itself to a new corporation, or one whose credit is not at the moment high enough to permit borrowing on advantageous terms. Such a corporation must pay high rates for the money it obtains. Yet, as it becomes better established, its credit position improves.

As this process goes on, a time will come when it is able to borrow at much lower rates of interest. At such a time it is highly advantageous to the corporation if it can retire its high-rate coupon bonds with funds secured from the sale of new bonds bearing a low rate of interest, for in this way a substantial saving in fixed charges will result.

The callable feature and the investor; the call premium. From the investor's standpoint, however, the callable feature cannot generally be said to offer very many attractions, principally because the corporation chooses to exercise its right to call either when interest rates are low and bond prices are correspondingly high, or after the corporation's credit has been so firmly established that the investor would prefer to keep his original, well-paying investment. In either case the investor normally prefers to have the bond, which by that time is showing an attractive yield on his original investment, rather than the funds. In other words the exercise of the call feature by the corporation always creates a problem of reinvestment.³ It is true that the bondholder is partly compensated for this situation when the call price is above the par value of the bond. In such cases the investor will receive a profit or premium above the cost of the bonds. This premium is generally so small, however, that it does not recompense the investor for the loss in time and interest which he usually experiences in the reinvestment process. This disadvantage may be illustrated by a specific instance.

Result with low call premium: Detroit Edison 8's, 1931. On January 10, 1925, the Detroit Edison Company called its 8 per cent convertible gold debentures due in 1931, at 103. These bonds were originally sold in 1921 at a price of 100. One might draw the conclusion that the difference between the original price, par, and 103, or \$30 per \$1,000 bond, would have constituted a sufficient cash reward for having the bonds called in 1925. Yet it must be considered that the average investor at that time was primarily interested in keeping his principal working, and that these bonds were yielding him, even at 103, a return of 7.35 per cent. In January, 1925, he could not have purchased an issue of equal merit to yield over 5.5 per cent. He

³The real effect of callable bonds on the investor, and a comparison of this type of bond with convertible issues, are clearly set forth in an article by Smith, Edgar L., "Speculation and Investment," in the *Atlantic Monthly*, October, 1925, p. 542 ff.

thus lost the equivalent of 1.85 per cent per annum on his principal for the period from 1925 to 1931. His gain, in this case measured by the \$30 in premium, evidently failed to offset the loss he suffered through a reduction in current income.⁴ He would have made more in the long run had the bonds not been paid until maturity and had he received the 8 per cent current income for the next six years, instead of, say, 103×5.5 , or \$56.65 per \$1,000 of old bonds that were called.

Result with high call premium: Goodyear Tire & Rubber 8's, 1931. There are instances, on the other hand, where the call price is set so high that it has a real value to the investor. The Goodyear Tire & Rubber Company, when reorganized in 1921, was unable to offer the highest type of security to the investor, because of its then low state of credit. In order, therefore, to attract funds, it was compelled to incorporate especially attractive terms in respect to the securities it offered to the public. Thus we find the company issuing first mortgage sinking fund bonds, with provisions that \$750,000 par value of bonds be retired semiannually, beginning with November 1, 1921, by drawing by lot, at 120 and interest, a rate that provided for retiring the entire issue by maturity at a premium of 20 per cent. The strong contract security behind these bonds, the high premium at which they were callable, and the possibility attaching to a given bond that it might enjoy an early call made them an attractive investment at the time they were originally offered, despite the then relatively low state of the company's credit.⁵

Changing premium rates. Although we have assumed that the price at which the bonds of a corporation may be called is a definite and fixed figure, it is nevertheless true that this premium may be made to vary in accordance with the length of time the bond runs before maturity. The contract of the Cleveland Elec-

⁴ We shall not enter here into a mathematical discussion of all the facts involved in cases of this kind, for the matter is necessarily complicated. A precise estimate as to what extent the investor gains or loses through having his bonds called would involve consideration of the original purchase price, the length of time the bonds have already run, the time of maturity, and the rate of return the investor can get through reinvestment of his principal.

⁵ Comparing this situation with the Detroit Edison Company's Convertible 8's we find that at the call price 103, the latter yielded 7.35 per cent at the time of call, whereas, on May 1, 1925, the yield for Goodyear 8's at 120, the call price, was less than 6 per cent. The high premium received by the original purchaser of Goodyear bonds was almost all gain, for at 120 the current yield could easily have been duplicated through the purchase of similar-grade bonds in the market.

tric Illuminating First Mortgage Gold 3's, due in 1970, which may be taken for illustrative purposes, provides for redemption of the issue in whole or in part by lot, at the company's option, at 108½ on or before June 30, 1941; at a price decreasing ¼ of 1 per cent on July 1, 1941, and at a further like reduction in premium yearly thereafter through 1962; a further decrease of ½ of 1 per cent on July 1, 1963, and an additional like reduction in premium yearly thereafter through 1968, and at par thereafter. The logic of this provision is seen when one considers that the amount of the premium is of increasing significance as the bond approaches maturity. For example, it would be out of the question for the company to call the issue at 107½ only a year, say, or even two years, before maturity. Instead of paying such a premium for so short a time, the company would find it more advantageous to wait until the bonds matured. Likewise, the gain to the investor would be correspondingly large. He would be handsomely paid for having his bonds retired only a short time before they would normally mature. Mathematically, there is a rate at which the premium should be decreased as maturity is approached, in order to maintain it at an equal value to the investor and to make the terms of equal burden to the corporation. This is approximated by the ¼ of 1 per cent annual decrease employed during the greater part of the life of the bond just discussed.

Right to call all or part of issue. Generally the corporation retains the right to call the whole or any part of a given issue. Sometimes, however, the redemption right is restricted to the entire issue or to a limited portion of it. Thus the Bethlehem Steel Corporation Consolidated Mortgage Sinking Fund 3¼'s, Series H, are callable only as a whole or in part in amounts of not less than \$5,000,000 (except for sinking fund) at any time on 30 days' notice. In still other cases the issue must be called in its entirety or not at all. Westinghouse Electric & Manufacturing Company Gold 7's, due in 1931, were callable only as a whole on May 1, 1926, or at any subsequent interest date, at a premium equal to ½ of 1 per cent for every six months intervening between redemption date and maturity. This issue has since been called in its entirety. Such a contract has a slight advantage to the holder in that it lessens somewhat the chances of the bond being called. A corporation may feel less inclined, or be less able, to provide funds for calling a whole issue than for calling only a part of it.

The call feature and price fluctuations. There is another aspect to the call feature as part of the bond contract which is closely tied up with the economic problems arising from changes in the price level and their effect on borrowers and creditors. Perhaps the greatest risk which the purchaser of high-grade bonds takes at any time arises from changes in the purchasing power of the dollar. In current market terminology the purchaser of bonds goes long of dollars and short of the cost of living. His purchase of bonds assumes the payment of a specific number of present dollars in return for the promise of a certain number of future dollars. As against this transaction, however, one must consider the requirements of the investor, during the life of the bond and at its maturity, in terms of goods. The only use that dollars can possibly have comes from their command over goods. If, during the life of the bond, dollars shrink in purchasing power, the purchaser of the bond, or the payee, loses. Similarly, if the purchasing power of the dollar increases, the corporation loses. The call feature offers a hedge to the corporation, in that it permits the corporation to pay off its obligation in full when the purchasing power of money is rising or when interest rates are low. Similarly, this feature creates a further hazard for the purchaser. In the past, a protracted fall in the price level has always been accompanied by a reduction in the general level of interest rates. It is during such periods that the holder of a bond purchased at the beginning of the cycle stands to gain the most. His gain is twofold: not only does the purchasing power of the money he receives under his contract increase, but the yield on his original investment continues to become increasingly favorable as compared with the possible yield on current commitments. The corporation, however, realizing its position in such a turn of affairs, often reserves the right to pay off the issue at a slight premium and thus to terminate a contract which threatens to become less and less favorable under such conditions. This, however, prevents the purchaser or the investor from profiting during the period when conditions are in his favor.

On the other hand, one rarely finds any provision that enables the investor to terminate his part of the contract when conditions are reversed. Periods of rising prices and rising interest rates generally occur simultaneously. During such a period the holder of bonds purchased at the beginning of the movement suffers. His dollar contract becomes less and less

favorable and he is committed to a low yield at a time when opportunities are available for more profitable investment. The presence of a convertible feature, whereby the bondholder is given the right to convert into the common stock of the company, would be especially favorable at such times, but this type of contract is found among few bonds.⁶ In practice, therefore, it often happens that the purchaser of bonds accepts a position whereby he is always compelled to suffer from changes in the price level and has no opportunity for profit. Exercise of the call privilege by the corporation prevents the bondholder from gaining when the cycle of interest rates and prices is moving in his favor, and no corresponding rights are given the bondholder to terminate his contract when the cycle moves against him.⁷

Necessity for prompt presentation of bond when called for. It is very important for the holder of callable bonds to present his bonds for payment immediately after they have been called, as interest ceases to run on the bond after the date (usually the next interest date) when the corporation offers to redeem it. From that time on, the corporation assumes no obligations to pay the coupons of such bonds, although it does recognize the obligation to pay the principal sum, even if the bond is presented long after the call date. It frequently happens that the inexperienced investor neglects to present his bonds for redemption, possibly failing to have observed the printed notice. He clips his next coupons as usual and presents them for payment, only to have them returned unpaid. He has thus lost interest for the entire period between the two interest dates.⁸ One advantage of the registered bond is the certainty of notification in the event of a call. When notification of the call is made through a newspaper, it may be overlooked.

Convertible bonds. Convertible bonds are issued with a somewhat different purpose in mind than are callable bonds. Here the aim is to give the bondholder all the security that goes with a bond, together with the possibility of participating in the

⁶ See p. 196.

⁷ For a full discussion of the economic aspects of the call and convertible features of bond contracts, see Smith, Edgar L., "Speculation and Investment," *Atlantic Monthly*, October, 1925, p. 542 ff.

⁸ It is customary practice for up-to-date bond houses to keep a record of the holdings of their clients and to notify them in the event that any of their bonds are called. Furthermore, it is becoming common practice for the paying agent to return to the bondholder the last coupon payable, and to give notice of the redemption, if the coupon is not accompanied by the bond.

future success of the company. Thus the holder of a convertible bond is given the option of converting his bond into the stock of the corporation at a specified ratio and after some stated time.

The economic significance of the convertible feature is important. As a practical matter, it is designed primarily to give the bondholder the privilege of sharing in the ultimate prosperity of the company, while according him the protection arising from a contractual obligation in the early stages of the company's growth. In theory, however, the convertible feature acts as a hedge against unfavorable changes in the price level. Under normal conditions a rise in prices adversely affects bondholders and is favorable to business corporations. If the bonds of a corporation may be converted into its common stock on terms that are not too onerous, it is apparent that the bondholder may escape the adverse effects of rising prices by converting his fixed income obligations into stock which shares in the corporation's assets and earning power. The effect here is quite the reverse of that caused by the introduction of the call feature, which usually operates in favor of the corporation and against the bondholder. It is unfortunate for the investor that the convertible feature is so uncommon and that those corporations which issue convertible bonds do so largely because of necessity. Either their credit position is not sufficiently favorable to permit them to borrow on favorable terms without the inclusion of special features in the bond contract, or else their capital structure is so arranged that any new securities issued must accept a subordinate position in relation to assets and earnings and hence require such special features to stimulate their sale. Rarely does it become necessary for strong corporations to offer the conversion privilege, in order to dispose of their bonds on favorable terms, except during periods of extreme financial stress. Examples of this latter use are the American Telephone and Telegraph Co. Convertible Debenture $4\frac{1}{2}$'s, due 1939, issued in 1929, and the Atchison, Topeka, and Santa Fe Ry. Co. Convertible $4\frac{1}{2}$'s, due 1948, issued in 1928.

The conversion contract. The contract in which the conversion privilege is set forth gives in considerable detail the conditions under which conversion may be made. Among the more important points covered in this connection are the manner in which the bonds to be converted should be surrendered, the times at which conversion may be made, the limits, if any, to the period during which the privilege may be exercised, the securi-

ties into which conversion may be made (bonds are generally convertible into either preferred or common stock), and the ratio of exchange—that is, the number of shares of stock which may be obtained for a given amount of par value of bonds. It is perhaps more simple to think of the conversion ratio as the price paid for the stock in terms of bonds, always considering the bonds to be worth par. Should the bonds be convertible into the common stock of the company at 80, this would mean that \$1,000 par value of bonds would purchase the same number of shares of stock as \$1,000 would if the market price of the stock were 80; that is $1,000 \div 80$, or $12\frac{1}{2}$ shares of stock. If the stock had been convertible at 150, the number of shares of stock which a \$1,000 bond would bring would be only $1,000 \div 150$, or $6\frac{2}{3}$. It is apparent that the price at which the stock into which the bond is convertible is selling on the market will determine how profitable the contract is at any particular time. This matter is explained in more detail below.

Type of security into which bonds are convertible. In most instances the security into which the bond may be converted is usually the common stock, occasionally the preferred stock of the company. It is apparent, however, that the right to convert into preferred stock carries only limited benefits to the bondholder, unless the preferred stock is participating; for ordinary preferred stock is closely akin to bonds, in that the return is limited to a stated dividend rate. The conversion privilege thus accords the bondholder in such cases the right to receive a somewhat higher current income, which is, however, derived from a security with considerably more risk than ordinarily exists in respect to bonds. When the conversion privilege extends to common stock, on the other hand, the bondholder is invited to participate without limit in the future prosperity of the company.

Simple type of convertible bond. A considerable number of convertible issues is available for illustrative purposes.⁹ We shall, however, confine our present selections to a few representative issues which emphasize the more important aspects of convertibility. New York Central Railroad Company Convertible 3 $\frac{1}{4}$'s of 1952 illustrate the simplest type of convertible bond. These bonds may be converted at any time up to and including

⁹ A convenient list of all the more important convertible issues is compiled in the investment services of Moody's Investors Service, Poor's Publishing Co., and Standard Statistics Co.

April 30, 1947 (or if called for redemption at an earlier date, up to and including such redemption date), into the common stock of the company at the rate of \$60 of bonds for each share of stock. Bondholders are entitled to accrued interest up to the date of conversion.

Anaconda Copper, Convertible 7's: varying ratios. In other cases the conversion ratio varies either in relation to the number of bonds offered for conversion or as the bond approaches maturity. The conversion privilege attaching to Anaconda Copper Convertible Gold 7's gave the bondholders the right to convert at any time prior to February 1, 1933, on the following basis: the first \$10,000,000 of debentures presented for conversion to be converted at \$53 a share;¹⁰ the next \$10,000,000, at a price of \$56 per share; the next \$10,000,000, at \$59 a share; the next \$10,000,000, at \$62 a share; and the last \$10,000,000, at \$65 a share. Provision was further made, in this case, for an adjustment of these conversion prices in the event of stock dividends or any change in the par value of the stock.

Change of conversion ratio, as maturity approaches: Chesapeake & Ohio Convertible 5's. Another type of conversion privilege was found in the Chesapeake & Ohio Ry. Convertible 30-Year Secured 5's, due in 1946. These bonds were convertible into common stock at 75 until April 1, 1920, at 80 from 1920 to 1923, at 90 from 1923 to 1926, and at par from April 1, 1926, to April 1, 1936. On February 19, 1925, the stock averaged to sell at 118%. It is at once apparent that the conversion feature had already operated to raise the value of the bonds over their normal, or yield, value. At that time, high-grade railroad bonds were selling to yield about 5 per cent. Thus, without the conversion feature, these bonds would not, in such a market, have sold at a price very far from par. As a result of the conversion privilege one would expect the bonds at that time to have sold at 131.53, that is, $\frac{118.375}{90}$. The bonds actually sold at 131.25.

The difference between the actual price and the conversion or computed price is negligible, and may be explained in part by the necessity for taking average prices for the day as compared with the actual price at a given instant. Furthermore, the time

¹⁰This means that \$53 par value of bonds is required to get one share of stock, par 50. A \$1,000 bond may thus be converted into 18.868 shares of stock. It is apparent that conversion would become profitable only after the stock approaches or exceeds \$53 a share. This issue is no longer outstanding.

element and the question of a selling or a buying commission will at all times permit a slight spread between the actual and the theoretical price of convertible bonds.

Where the conversion ratio changes as the bond nears maturity, the value of the privilege to the bondholder is reduced somewhat as compared with the value of the bond in which the ratio remains unchanged. In general, if the price ratio is automatically raised as the bonds approach maturity, the market price of the stock must increase at a more rapid rate, in order to make conversion profitable, than would be necessary if the ratio of conversion were not raised throughout the life of the bond.

When conversion is profitable. In a discussion of the profits of conversion, a distinction must be drawn between the conditions which make the privilege profitable and those which make for actual conversion. A possible profit exists whenever a rising market price lifts the price of a convertible bond above its initial purchase price. Conversion is unnecessary for the realization of this profit, which can be obtained by merely selling the bond. Some purchasers might always adopt this course in taking profits, either because they dislike the particular stock as an investment or because they are prevented from acquiring stocks, as in the case of commercial banks. The act of conversion should not be too closely associated with profit realization. Three situations make conversion desirable:

1. When the dividends (or other valuable rights) from the stock are sufficiently greater than the interest paid to the owner of the convertible bond to compensate for the greater risk, and the stock can be acquired more cheaply by conversion than by a sale of the bond and by purchase of the stock in the open market. Thus, if a given bond were convertible, par for par, into stock and paid six per cent interest, while the stock paid five per cent, it would hardly be profitable to convert, although the stock might have risen well above par on earnings or earnings prospects. If the stock rose to 130, the bond should also sell for at least that figure, or substantially so; otherwise arbitragers, as suggested below, could make a profit by acquiring bonds and converting them into stock with a greater market value. It should be noted that, even if, in the opinion of the bondholder, this situation were ripe for conversion because of the greater income from dividends, he will, if he is alert, only convert when the market prices make conversion the cheaper way of acquiring

stock. If the bonds should sell for 135 and the stock for 130, in the above case, it would be cheaper to acquire the stock by selling the bonds and buying the stock with the resultant cash, than to convert.¹¹

2. Another situation in which conversion is indicated, even though income is not advantageously increased, is that in which the bond with this privilege is about to suffer a loss of value either through: (a) expiration of the right; or (b) a change in the conversion ratio to a less attractive basis. Thus, in 1925, the New York Central Railroad Co. Convertible Debenture 6's, due 1935, convertible at the rate of \$105 par of bonds for \$100 par of stock, were converted into stock because the privilege expired May 1, 1925. Up to that time, the 7 per cent dividend on the stock had not been sufficient to cause the conversion of the bulk of the bonds.

At other times when a bond with a changing conversion ratio approaches the time when the change is about to occur, the holder may find it necessary to convert in order to avoid a loss in the value of his holdings.¹² Thus, a certain bond, currently convertible into 28 shares of common stock for each \$1,000 of par value, might be approaching the time when the conversion ratio would fall to 25 shares. Suppose the stock were selling at \$50 per share, although paying either no dividend or a nominal one, so that increased income would not provide a motive for conversion. But at a price of 50, 28 shares, and therefore a \$1,000 bond, are worth \$1,400, which figure would fall to \$1,250 when the conversion ratio falls to 25 shares. Failure to convert would mean losing just so much of the value of the privilege.¹³

¹¹Sometimes bonds sell for more than either the interest they pay or the market value of the stock into which they can be converted would appear to justify. A possible explanation may lie either in: (1) the desire to speculate of some who are barred from stocks by legal restrictions that force them into the bond market, thereby pushing bonds to an unnaturally high price; or (2) a preference for speculation in bonds because their loss possibilities through market decline are less than those of stocks.

¹²This change in the conversion ratio may result from a provision that changes the ratio when a certain amount of the issue has been converted, or when a certain date has passed. The first type of changing ratio is illustrated by the Anaconda Copper Convertible 7's, mentioned above, and the Dodge issue, mentioned in the next footnote; the second type, by the Chesapeake & Ohio Ry. Convertible Secured 5's of 1946, mentioned above, and by the American Telephone & Telegraph 4½'s of 1939, which were convertible at \$180 per share in 1930, \$190 during 1931 and 1932, and \$200 from 1933 to 1937, inclusive, with a provision protecting against dilution, as in the case of stock rights.

¹³The student may be interested in this connection in reviewing the Dodge financing. (See *Commercial and Financial Chronicle*, Vol. 120, p. 1885.) The

3. A third situation calling for conversion arises whenever, through inadvertence, the market price of a convertible bond falls below the price justified by the market price of the stock into which it is convertible. Such a situation would necessarily be temporary, for arbitragers would hasten to bid for the undervalued bonds in order to convert and sell the resulting stock for the profit. This condition is rare, as it can only occur when owners of bonds, desiring to sell, overlook the opportunity for a better price by exercising their conversion privilege and then selling the stock.

Conversion with callable feature. The presence of a callable clause in a convertible bond likewise lessens its value. In the contract of the Chesapeake & Ohio bonds referred to above, for example, there was a clause giving the company the right to call the issue as a whole at 105, on or before April 1, 1929, and thereafter at par, upon 60 days' notice. It is true that the company, in the event that the call privilege was exercised, was required to give the holder 60 days' notice, thus allowing him time in which to convert if he so desired. While this situation afforded the bondholder some protection, it did not, on the other hand, prevent the company from taking away the conversion privilege

15-year convertible debentures issued at the time the company was refinanced in 1925 were offered originally at 99 and interest. The convertible features of this issue may be summarized as follows: "Debentures to a total face value of \$30,000,000 (total issue, \$75,000,000) will be convertible, at the option of the holder, into common stock, class 'A.' In making conversion, debentures shall be valued at face value and stock at \$30 per share until a total of \$5,000,000 of debentures shall have been converted. The conversion value per share of stock for each succeeding \$5,000,000 of debentures converted thereafter shall be as follows: \$35, \$40, \$50, \$60, and \$70, respectively." The holder of debentures would make a profit if the stock should cross \$30. In order to benefit by the low conversion price of 30, however, the bondholder would have to be among the first to convert, as only \$5,000,000 of debentures were convertible at \$30. On September 12 it was announced that the first \$5,000,000 of debentures had been presented for conversion. (*Chronicle*, Vol. 121, p. 1351.) Up to this time the stock had sold as high as 31, although averaging to sell somewhat under 30. By October 10 it appears that \$10,000,000 more debentures had been converted (*Chronicle*, Vol. 121, p. 1794), the last \$5,000,000 of which were converted at 40. The highest price at which the stock had sold up to this time was 40¼. It is apparent that the desire to be included in the "next" \$5,000,000 group would at any time urge the bondholder to convert some of his stock before it actually sold at the conversion point, although not if it were selling substantially below it. Such conversion operations anticipate a subsequent appreciation in the price of the stock to a point above the conversion price. The preceding discussion assumes that the bonds did not fluctuate very far from 100. The price range for the entire period the bonds were outstanding, from the time of issue to October 10, was 94 to 100.

entirely by calling the issue at 105 and accrued interest on October 1, 1926, thus taking away further benefits which might have accrued from a subsequent rise in the price of the stock.

Bonds with detachable purchase warrants. Another method by which the bondholder may be given a call on the stock of a company and thereby be allowed to participate in its future growth is through the use of purchase warrants attached to the bond. Thus the original purchaser of a \$1,000, Sinking Fund Gold 8 per cent bond of the Pathé Exchange, Inc., in 1921, received also a detachable warrant entitling the holder to purchase at any time before the close of business on September 1, 1931, 40 shares of Class A common stock at \$25 per share. This right had slight value at the time the bonds were put out, since the stock was then selling below \$25 per share.¹⁴ The writer recalls the expression of surprise that came over the face of an elderly lady who came to his office one day in August, 1925, and, upon inquiring whether a certain piece of paper which she handed to him was worth anything, learned its real value. An examination had proved the document to be a detachable warrant entitling the holder to purchase 40 shares of Class A stock of Pathé, Inc., at \$25 a share. The market quotation for the stock at that time was \$80 per share. Her warrant was worth approximately \$2,200.

The value of purchase warrants depends, therefore, on the future prospects for an advance in the value of the stock of the issuing company. A corporation generally issues such bonds only when its credit is not especially high. At such times additional attractions must be given to prospective investors, if they are to be induced to purchase the bonds of the company at a price at all satisfactory to the issuing corporation. The speculative value attaching to the warrants is used as a means of "sweetening" an otherwise risky investment, for if, and when, the stock advances to a point above the price at which new stock can be purchased from the company, the detachable warrant has a value. The holder of the bond may obtain this profit either by buying shares of stock from the company or by selling his warrant (which is usually transferable) on the market. The non-

¹⁴Note that even before the stock reaches the subscription price stipulated in the warrant, the instrument has some speculative value as an option or call on the stock. In the same way a conversion privilege can have market value even if the stock into which the bond is convertible has so low a price as to make immediate conversion unattractive.

detachable warrant is generally somewhat less valuable than the type which can be separated, partly because its nondetachability prevents a separate evaluation of it by the speculative type of buyer who would value it most highly and does not wish to make a heavy commitment in bonds; and partly because its life is more likely to be terminated by the redemption of the bond.

Stabilized bonds. Our discussion of special types of bonds would be incomplete if we failed to devote some attention to an innovation in bond financing known as the stabilized bond. The first important use of this type of bond was made in 1925 by the Rand Kardex Company.¹⁵ The attention which we devote to this type of bond is warranted not so much on account of its relative importance among corporate issues, as on account of the novel ideas incorporated therein. In our discussion of this bond, therefore, we shall attempt to reiterate some of the more important influences which affect the position of bondholders as a class. We refer here to those influences which result from changes in the price level and which affect the bondholder quite independently of the changes in the financial position of any given company.

The student of economics is familiar with the wide fluctuations which occurred in the purchasing power of the dollar from 1865 to date. If the 1913 dollar is used as a base and regarded as worth 100 cents, the average of wholesale commodity prices was such that in 1865 this dollar would have been worth 40 cents, the result of the peak inflation of prices at the end of the Civil War. After 1865, a long period of declining prices brought the purchasing power of the dollar up to 150 cents in 1896; then it fell slowly until the World War, but rapidly as war inflation boosted American prices, until at the peak in 1920 it was worth about 40 cents. During most of the following decade, the dollar averaged in the neighborhood of 60 cents but rose during the depression to about 80 cents, after which the movement was reversed. These relative values are based upon purchasing power as measured by the wholesale commodity price indexes of the United States Bureau of Labor Statistics. It is suggested that those who prefer to think in terms of the cost of living, which

¹⁵ This bond is fully described in an article appearing in the *Analyst*, November 13, 1925, written by Professor Irving Fisher, of Yale University. Professor Fisher is a strong advocate of a stabilized dollar. See Fisher, Irving, *Stabilizing the Dollar* (New York: The Macmillan Co., 1920); and "Our Unstable Dollar and the So-Called Business Cycle," *Journal of the American Statistical Association*, June, 1925, p. 179 ff.

fluctuates somewhat more slowly, consult the indexes published by the same bureau and by the National Industrial Conference Board of New York City. The average index numbers as prepared by the former organization are shown for selected years, as follows:

COST OF LIVING INDEX NUMBERS FOR DECEMBER
OF EACH YEAR*

(Average 1935-1939 = 100)

1913.....	72	1925	128	1936..	100
1915.	73	1929.....	123	1937	103
1917.....	98	1930.....	115	1938.....	100
1920.	138	1932.....	94	1939.....	100
1922.....	120	1935	94		

* United States Bureau of Labor Statistics

The bondholder, as we see, is paid in dollars, which vary widely from year to year in purchasing power. The essential aim of the stabilized bond is to eliminate the risks arising from this situation.

Rand Kardex Stabilized 7's. No better description of the manner in which the Rand Kardex Company expected to eliminate investment losses resulting from fluctuations in price levels can be given than that appearing in the bond contract under which these bonds were issued. Here we find the following pertinent agreements made with the purchaser of the bond:

The Rand Kardex Company, for value received, hereby promises to pay the registered holder hereof on the first day of July, 1955 (place of payment), such sum of money as shall possess the present purchasing power of one thousand dollars (\$1,000) with interest thereon at the rate of 7 per cent per annum, payable quarterly (dates), in such sums as shall, at the respective times of payment, equal in purchasing power one and seventy-five one hundredths per cent (1.75%) of said purchasing power of one thousand dollars (\$1,000), all to be based upon an index number of the prices of commodities defined and fixed in accordance with the amplified statement below. . . .

The index number of the prices and commodities employed hereunder shall be the well-known index number of wholesale prices of the United States Bureau of Labor Statistics as published each month, subject to such modifications, amplifications, and changes of method in making and computing the same as shall, or may, be made by said bureau from time to time.

If as of any date, the index number of the prices of commodities shall remain at approximately the present level, that is to say, if it does not rise or fall as much as one-tenth part of the level fixed as of July 1, 1925, i.e., 157.5, then the amount to be paid as principal shall be one thousand dollars (\$1,000); and the amount to be paid as interest on any quarterly interest date shall be seventeen dollars and fifty cents (\$17.50).

In case the index number as of any due date shall be found to be more or

less than that fixed for July 1, 1925, by as much as one-tenth part of said index number of July 1, 1925, then, for every full one-tenth rise or fall of said index number, there shall be added or subtracted, respectively, one-tenth of the payment then due, said one-tenth being \$1.75 for any quarterly payment of interest and \$100 for the principal sum.

The preceding description does not cover the entire bond contract, but reproduces those parts which have an essential bearing on the methods to be employed in computing the amount of interest due at any interest date and the amount of principal due at maturity. Unquestionably this type of bond has many advantages, but it is doubtful whether it will play an important part in American finance in the immediate future. The uncertainty as to what the fixed obligations of the issuing company will be in any year, and especially the uncertainty as to what principal payment it will have to make at maturity, will probably deter corporations from issuing such bonds. However, it should be noted that industrial profits tend to vary with the price level, so that the corporation might be better able to pay on such a bond than under the present rigid contract. Another objection lies in the great extent to which the market for high-grade bonds is composed of life insurance companies and savings and commercial banks that are more concerned with meeting fixed dollar liabilities than with possessing constant purchasing power. Even individuals for whom buying power is all-important are likely to feel that "a dollar is a dollar" and be suspicious of this novelty. However, the stabilized bond might well receive more attention, in view of the departure of the United States from its former gold standard, the increased fears of monetary instability, and the increased education in the mysteries of money. The original purpose of the gold clause was to protect bondholders against depreciation through governmental tampering with the currency. With the gold clause made illegal, the stabilized bond that attacks the investors' problem more directly might become more popular, at least for industrials and corporations other than public service corporations, which sell their bonds more to individuals than to institutions. The force of habit and custom is likely to prevent any very wide use.

Summary. Our purpose in this chapter has been to cover certain special classes of bonds, or special aspects of typical bond contracts that deserve more consideration than could be given in the preceding chapters. The call feature, or right to redeem, usually works to the advantage of the issuing corporation and to

the disadvantage of the purchaser, although in some instances the premium which the corporation is required to pay results in a profit to the purchaser. The conversion feature, on the other hand, is designed to allow the bondholder to participate in the future success of the company, if any. While such participation is usually offered through the conversion privilege, detachable warrants with the right to purchase a company's stock at a specified price are becoming more common. The stabilized bond is a unique experiment in American finance, designed to eliminate the risk which investors now incur through fluctuations in the purchasing power of the dollar. The future of this type of bond is at present uncertain, although it focuses attention on a real problem that confronts every investor.

Preferred Stocks

Development of preferred stocks. The fundamental distinction between bonds and stocks is clear: the former are contractual obligations to pay a certain sum of money and interest at a definite rate and at the times set forth in the contract. Stocks, on the other hand, evidence ownership rights to participate in the earnings and management of the corporation. Simple as this distinction appears, the evolutionary process that has gone on in corporation finance has resulted in the emergence of securities that are more or less intermediate between purely contractual obligations, on the one hand, and outright evidences of ownership on the other. The income bond, it will be recalled, can hardly be designated as a full contractual obligation, for the payment of interest is generally contingent upon the earnings that the corporation can produce. Preferred stocks are on the other side of our dividing line, yet they are not, strictly speaking, ownership securities. In the main, their rights to participate in the earnings of the company are definitely limited, and not infrequently their right to vote at stockholders' meetings is denied or limited.

There are various reasons for the existence of preferred stocks in American finance. In the first place there is always a strong motive for the issuance of such securities when a financial reorganization becomes necessary. At such times it becomes essential to reduce fixed charges, and this is often done by requiring the junior bondholders to accept preferred stock in lieu of their bonds. In this way fixed charges are converted into contingent charges, yet the former bondholders are given a prior claim on

earnings.¹ But the development of preferred stock issues is by no means confined to reorganization finance. At the time of the great industrial consolidations that occurred in this country between 1900 and 1910, it was customary to issue bonds and preferred stock up to the value of the physical property and to issue common stock on the basis of anticipated earning power.

Preferred stocks a convenient method of corporate financing. During recent years there has been a considerable output of preferred stocks in connection with public utility financing, although preferred stocks have been issued on a large scale by industrial concerns as well. Some idea of the more recent tendencies in this respect may be obtained from the table below:

ANALYSIS OF CORPORATE FINANCING BY CLASSES OF ISSUES—
UNITED STATES*

Year	Long-Term Bonds		Short-Term Bonds		Preferred Stock		Common Stock	
1925	\$2,667	63%	\$ 308	7%	\$ 637	15%	\$ 610	15%
1926	3,059	67	294	6	544	12	677	15
1927	4,466	69	302	5	1,055	10	684	16
1928	3,174	46	265	4	1,397	20	2,094	30
1929	2,369	25	251	3	1,695	18	5,062	54
1930	2,810	57	620	12	422	9	1,105	22
1931	1,628	69	400	17	148	6	195	8
1932	406	63	214	33	11	2	13	2
1933	138	36	89	23	15	5	137	36
1934	287	59	168	34	3	1	31	6
1935	2,066	91	51	2	124	5	27	2
1936	3,963	87	63	0	271	6	282	7
1937	1,579	64	95	5	468	19	292	12
1938	2,032	95	10	¼	79	4	18	¼
1939	1,794	85	77	4	161	8	68	¼

* Compiled from *Commercial and Financial Chronicle*.

From the point of view of the corporation, preferred stock has an advantage over bonds in that it avoids a fixed charge and a maturity, which might offer a threat to solvency. As compared with an issue of common stock, preferred may be easier to sell or, indeed, the only kind of stock which the corporation could dispose of successfully. Preferred shares resemble bonds in providing a financial device for raising funds at a relatively low cost. Such funds successfully employed add to the earnings of the common stockholders.

¹ A study of almost any of the important railroad reorganizations will illustrate this tendency. See Daggett, Stuart, *Railroad Reorganization* (New York: Houghton Mifflin Co., 1908); and Ripley, W. Z., *Railroads, Finance and Organization* (New York: Longmans, Green & Co., 1915).

Preferred stock enables this principle of "trading on equity" to be carried further than would be possible were bonds alone employed. If a corporation with a present capital structure consisting of \$1,000,000 of capital stock and \$1,000,000 of 6 per cent bonds is able to earn on its invested capital at the rate of 10 per cent, it is obvious that the common stockholder gets a return of 14 per cent. If the total investment of \$2,000,000 earns 10 per cent, then the total return is \$200,000. After 6 per cent is deducted as bond interest, there remains \$140,000 for the stock, or \$14 per share, par value \$100. If the directors of the corporation are confident that another million of capital invested will be able to earn at the current rate of 10 per cent, an additional earning capacity of \$4 per share will be forthcoming for the common stock, if this capital can be secured by issuing more 6 per cent bonds; or \$3 per share, if 7 per cent preferred stock is sold. In any event per share earnings cannot be increased by selling more common stock at par, for the amount of stock increases as rapidly as earnings.

Preferred stocks, as a group, have higher investment risks than bonds. This is but natural, in view of the lack of a contractual promise to pay either interest or principal, and in view of the fact that preferred stocks are frequently preceded by bonds or notes, and are always preceded by current liabilities. Furthermore, preferred stocks, although they may be accompanied by sinking fund provisions, are never issued with a definite maturity date. It would be contrary to the very nature of stock to issue it in such form. Should the investor who buys preferred stocks desire eventually to get back the principal sum he invests, he must rely either on disposing of his security to some other purchaser or on having his stock called. Lacking, as it does, a definite contractual promise of the corporation to pay either dividends or principal, preferred stock occupies a position, in the event of default, even less desirable than that of the unsecured creditors of the corporation. Preferred stockholders have no contractual claim against the corporation. Their equities, as well as those of the common holder, must be used without limit to satisfy the creditors, and only what is left after complete satisfaction of all prior claims can be considered the property of the preferred holder. There are occasions when the bondholders and other creditors seek additional cash for the reorganized corporation. Rather than supply this cash themselves, they frequently make concessions to the preferred and common stock-

holders, provided that the latter agree to supply such funds. It cannot be said, however, that such concessions add particularly to the position of preferred stock in times of financial stress.

Appeal of preferred stocks because of yield. So much for the motives which urge the corporation to issue preferred stock when in need of funds. Since it is impossible for the corporation, either directly or through investment bankers, to float securities that are not in public demand, a complete explanation of the growth of this type of security requires an analysis of the public's attitude toward preferred stocks. As already stated, preferred stock issues promise a greater current return than bonds. At first glance they seem to offer the prerequisites of a safe investment—security and regularity of income and safety of principal. They also offer comparative freedom from care. While not as safe as bonds, they appeal to a large group of investors who seek a somewhat higher return than bonds offer.² It is this differential which has played so important a part in stimulating the sale of preferred stocks during recent years. The rapid rise in prices after 1917 reacted most unfavorably on the so-called "fixed income" receiver—the person, for example, who was dependent on the income from invested funds. As prices and living costs mounted rapidly, a real problem was created for many persons who formerly lived comfortably on the income from their invested funds. It was generally impossible to increase their principals, and the only remaining solution was to increase the income from such funds. A partial solution lay in the shift of investments from bonds to preferred stocks. The extent to which this actually occurred cannot be measured statistically. This movement, however, has been generally recognized by investment banking houses, and evidence of the increasing popularity of preferred stocks is found in the table on page 76. Referring to this table, one notes a decided narrowing of the margin between the yield on preferred stocks and bonds after 1918. The margin of differential dropped from a fairly constant level of about 1.5 per cent to 1.30 per cent in 1916, near which level it remained until 1919. In that year the differential became less than 1 per cent for the first time, and since then it has remained under 1 per cent. From 1919 to 1926, the difference in yields ranged between .78 per cent and .93 per cent. In 1927, a drop to .68 per cent occurred. In 1928, 1929, and 1930, the differen-

² For a comparison of a sample of high-grade industrial bonds and preferred stocks for the period of 1910-1930, see page 76.

tials were .47 per cent, .44 per cent, and .59 per cent, respectively. The differentials since 1930 are of somewhat uncertain significance owing in large part to the difficulties affecting the particular sample of bonds chosen.³ In general, preferred stock yields are higher than yields for bonds in a similar statistical position. This continuing difference can be partly attributed to the unusual demand for bonds by investors, such as commercial banks, who are not permitted to buy stocks.

Preferred stockholder and changes in price level. It is a question whether this shift has proved, on the whole, a profitable one. A slight increase in yield has been gained, to be sure. Yet this does not answer the question fully. If the investment risk, measured by actual principal and dividend losses over a wide group of preferred stocks, is less than that indicated by the additional yield, the shift has been at least partially profitable.⁴ Yet preferred stocks, unless participating, are subject to the same influences that make bonds a poor medium of investment during periods of rising prices. They are fixed income-bearing obligations and, except for a very slight improvement in their credit status at such times, they fail to appreciate with rising prices in the way that common stocks do. It is no hedge for the investor to diversify between bonds and preferred stocks with the idea of protecting himself against changes in the price level. The division must be made between bonds or preferred stocks, on the one hand, and common stocks, on the other.

Preferred stock contract. Preferred stocks, unlike bonds, require no indenture. The authority under which the corporation issues preferred stock is found either in the original or the amended corporate charter. Here also are found all the various agreements that the corporation makes with the preferred holders. The following example, which states briefly the preferred stock provisions of the Spicer Manufacturing Company, illustrates the manner in which this agreement is ordinarily set forth:

PREFERRED STOCK PROVISIONS

The Certificate of Incorporation of the Corporation, as amended, provides, among other things, substantially as follows:

(a) The preferred stock is designated Cumulative Preference Stock, Convertible \$3 Dividend, Series A.

³ A further statement of the differences between bonds and preferred stocks may be found above in connection with the table cited, page 75.

⁴ For further discussion of this point see p. 226 ff.

(b) The preferred stock shall be entitled to dividends at the rate of \$3 per share per annum, and no more, payable quarterly on January 15, April 15, July 15, and October 15 in each year, cumulative from January 15, 1929.

(c) The preferred stock shall in event of liquidation be entitled to receive \$57.50 per share and accrued and unpaid dividends.

(d) The preferred stock will be redeemable as a whole or from time to time in part at the option of the Corporation at any time on at least 30 days' notice at \$57.50 per share and accrued and unpaid dividends.

(e) Additional shares of preferred stock may be issued from time to time as shares of the series above mentioned or as shares of one or more other series. The provisions of these shares will be determined by the Board of Directors and will be such as not to be inconsistent with the provisions of the amended Certificate of Incorporation. The preferred stock of each series shall rank on a parity with the preferred stock of every other series with respect to priority in the payment of dividends and the distribution of assets.

(f) Certain acts, which because of their nature might affect the equity and rights held by the preferred stockholder, will not be performed by the Corporation, if the holders of one-third of the outstanding preferred stock shall object thereto in writing, within 20 days after notice thereof. (These are enumerated.)

(g) The Corporation will not issue preferred stock in excess of 115,000 shares except for cash or property, and unless either (1) two-thirds of the outstanding preferred stock shall have authorized such issue, or (2) consolidated net profits of the Corporation and its subsidiaries, applicable to dividends for 12 consecutive calendar months out of the 14 calendar months next preceding the issuance of such additional shares, shall have been not less than three times the annual dividend requirements on the preferred stock outstanding and that proposed to be issued.

(h) Except as otherwise provided by law and the amended Certificate of Incorporation, and in the event of default in the payment of any four quarterly dividends, in which event the preferred stock shall have the right to elect a majority of the Directors, the preferred stock shall have no voting power, such voting power being vested exclusively in the holders of the common stock.

(i) The preferred stock shall have no preemptive right to subscribe for or purchase additional issues of stock of any class.

(j) The preferred stock will be convertible at the option of the holders into common stock of the Corporation at the rate of four shares of preferred stock for three shares of common stock, at any time prior to January 1, 1933, unless called for redemption, and then up to five days prior to the redemption date.

While there is a wide variation in the contract provisions surrounding the preferred stocks of different corporations, one must constantly bear in mind the difference between the preferred stock contract and the bond contract. In the latter, the corporation agrees specifically to perform certain acts, failure to perform which constitutes default and gives the bondholders recourse against the corporation. Maturity of the debt is accelerated so

that the bondholder may press for immediate payment of the full amount of his claim; the preferred stockholder, as owner, cannot take action that would produce insolvency.

Bonds versus preferred stock. Preferred stock cannot be raised to the status of bonds. It is this fundamental difference between credit and ownership instruments of a corporation which makes it necessary to draw a sharp distinction between bonds, on the one hand, and stocks, on the other, whether the latter be prior preferred, preferred, or common. Despite the fact that corporations, independently, or on the advice of the investment bankers who sell their issues, have frequently attempted to raise the investment status of their preferred stocks by entering into elaborate contracts with the preferred holder, specifying exactly what preferences he should have, and limiting the common stockholder in respect to the exercise of some of his rights, especially those pertaining to the payment of dividends until the preferred holder's financial position is secured, the fundamental nature of preferred stocks nevertheless remains the same. Such securities are not based on a definite contract whereby the corporation agrees to pay dividends, nor is there any specified maturity date at which time the original investment or principal sum is paid back to the stockholder.⁵ The preferred holder is, in fact, a part owner in the enterprise, and if he fails to receive dividends, or if any other aspect of the contract cannot be lived up to, he has no recourse.

Types of preferred stock. Having established the fundamental distinction between bonds and stocks, whether the latter be preferred or common, we may now proceed to a more close examination of the nature of preferred stocks in contrast with common stocks, as well as the more important types of preferred stocks ordinarily found in the securities markets. This last question will require us to examine in some detail the nature of the preferred stock contract in selected cases.

In a legal sense, there is no difference between preferred and common stocks, in that both represent evidences of ownership in a corporation. It thus occurs that, in any suit brought by a preferred stockholder in which he attempts to press his rights or preferences over the common stockholder, he must furnish evi-

⁵It is true that a limited number of preferred stock issues contains agreements under which the corporation sets aside sinking funds for redeeming the preferred stock within a specified period, but these payments are contingent upon earnings, and failure to pay is not a default, as in the case of the bond sinking fund.

dence of the special rights which he claims; otherwise no distinction will be recognized.⁶

Noncumulative preferred stock. The weakest form of preferred stock is the noncumulative type on which the issuing corporation is obliged to pay only the stipulated rate in any given year before it can pay something to the common stock. Failure to pay a dividend on noncumulative preferred stock does not give its holder any rights to the passed dividend in subsequent years.

The advantage of this type of security over common stock lies in the priority of its dividend claim and the consequently larger hope of a regular dividend or even of any dividend at all. The disadvantages attaching to this kind of preferred stock come from the fact that such stock may not participate in the earnings of the corporation above the specified dividend rate. Thus, in cases where the company becomes highly successful, the preferred stockholder continues to receive his old rate of dividends and enjoys only the relatively small advantage of having the investment rating of his stock raised to some extent. The real gains all go to the common stockholder. Furthermore, this very financial success may be the result of sacrifices that the preferred holder has been compelled to make. For instance, the mere fact that the preferred dividend is earned in any year is no reason why it must be paid. It is conceivable that the directors may elect not to declare any dividends in a given year, or for several years, even though earnings are shown on the books of the corporation.⁷ In this way the property account and surplus of a company may be substantially increased at the expense of the preferred holder, who fails to receive any dividends during this period of growth. The result of this is an increase in the value

⁶ *Roger v. New York, etc., Land Co.* (1892), 134 N. Y. 197. "The agreement (the right of the preferred stock) is ascertained from the contract, reports, resolutions, conveyances, etc." *Hackett v. Northern, etc., Railway* (1905), 140 Fed. 717. "In a suit by a preferred holder, he must allege the character of his preference."

⁷ It is true that even minority stockholders may compel the payment of dividends in a case where earnings are very large and where the payment of dividends clearly will not jeopardize the cash position of the company. A court of equity, while not willing to substitute its judgment for that of the directors, will not permit a minority interest, or preferred stockholders who may constitute a minority interest, to suffer from fraudulent action on the part of a board of directors. This protection is of little value, however, for it is extremely difficult to prove fraud, and the courts consistently refuse to substitute their judgment for that of the directors in matters pertaining to the declaration of dividends.

the common stock investment without a corresponding gain to the preferred holder.

Case of Southern Railway preferred. This is exactly what happened in the case of the Southern Railway Company. The preferred stock of this company is noncumulative and has had checkered experience in respect to dividends. The directors

the company declared varying dividends on the stock up to 1923, frequently declaring less than was actually earned. In fact, during certain years prior to this time, no dividends were paid at all, although net earnings were in excess of the entire preferred dividend requirements. The directors used surplus earnings that might have been declared as preferred dividends in building up the road's properties, until, in 1923, the earnings

of the road were ample to pay dividends on both preferred and common stocks.⁸ After 1923, the full preferred dividend was disbursed, as well as liberal dividends on the common stock. The holders of the preferred stock in 1924 brought suit against the company, claiming some \$29,000,000 of back dividends that had been earned but not paid. The Court held, however, that:

⁸The table below presents the earnings of the Southern Railway Company available for dividends from 1912 to 1924, the preferred dividend requirements, the amount paid, and the amount that was earned and not paid. After 1923, the preferred dividends were paid each year until 1932.

DIVIDENDS AND EARNINGS—SOUTHERN RAILWAY CO.

	<i>Year</i>	<i>Net Earnings</i>	<i>Preferred Requirements</i>	<i>Preferred Dividends</i>	<i>Earned and Not Paid</i>
Year	1924.....	\$17,769,140	\$3,000,000	\$3,000,000	none
ended	1923.....	15,136,998	3,000,000	3,000,000	none
ec. 31)	1922.....	8,823,797	3,000,000	1,500,000	\$1,500,000
	1921.....	2,019,370	3,000,000	none	2,019,370
	1920.....	1,220,514	3,000,000	1,500,000	none
	1919.....	5,360,587	3,000,000	3,000,000	none
	1918.....	4,795,852	3,000,000	3,000,000	none
Year	1917.....	13,917,205	3,000,000	1,500,000	1,500,000
ended	1916.....	11,324,664	3,000,000	none	3,000,000
ine 30)	1916.....	9,245,703	3,000,000	none	3,000,000
	1915.....	1,523,396	3,000,000	none	1,523,396
	1914.....	4,747,777	3,000,000	2,700,000	300,000
	1913.....	7,029,965	3,000,000	3,000,000	none
	1912.....	6,718,128	3,000,000	2,700,000	300,000

It should also be borne in mind that the company had a sizable surplus on its books, so that the payment of dividends would not have resulted in capital impairment.

... the contract here does not give preferred stockholders a fixed dividend chargeable upon the profits of each and every year, irrespective of a declaration of dividends by the board, and hence does not create in favor of the preferred stockholder an obligation upon the company which places the company under a continuing liability to him for a percentage of earnings made and not paid in any one year. This is the effect here of the phrase "non-cumulative" as determined by other provisions accompanying its use and by language serving to show what it should be taken to mean. . . . I am of the opinion upon the whole case that, when the directors of the Southern Railway failed to declare dividends for the benefit of the preferred stockholders in any year in which earnings were sufficient for that purpose and in bona fide exercise of their discretion allowed those earnings not declared as dividends to be used for general corporate purposes as they deemed best, such failure to declare a dividend settled the question as to the right of any class of stockholders to demand payment out of the then existing or future earnings of the railroad company for any such past dividend.⁹

Legal distinction between noncumulative and cumulative stock clear. In arriving at his decision, the judge stated that the disposal of net earnings was a function of the board of directors, and that the decision of the board must be accepted unless it was proved oppressive or fraudulent. The accepted difference between cumulative and noncumulative preferred stock was maintained. In an effort, however, clearly to ascertain the accepted distinction, the judge sitting in the case not only examined closely the charter of the corporation, but also studied authorities who wrote at the time the stock was originally issued in 1894. The conclusion, derived from a study of such authorities as Machen, Thompson, and Cook, was that the word "cumulative" means that dividends which might be paid out as earnings, but which are not so paid, shall be carried over from year to year, but, eventually, must be paid before dividends can be paid on the common stock. "Noncumulative" means that the right to the dividend is measured by the action of the board of directors in any one year and that the failure to declare the dividend in any one year prevents it from accumulating in subsequent years as a further charge on the current or subsequent earnings of the company. The charter of the corporation, in so far as it relates to the preferred stock contract, supports these conclusions:

The preferred stock is entitled to the following preferences and to no other, namely:

⁹ *Norwich Water Power Co. v. So. Ry. Crump. Rich., Va.*, June 27, 1925, quoted in *Commercial and Financial Chronicle*, Vol. 121, pp. 71, 72. See also *Wabash Ry. Co., et al. v. Barclay, et al.*, 280 U. S. 197 (1930).

In each and every fiscal year after the first of July, 1895, to receive non-cumulative dividends at and up to the rate of 5% per annum in preference and priority to the payment of any dividend on the common stock in such fiscal year, but only from the net profits of the company as such shall be fixed and determined by the board of directors, and only when and as such board shall declare dividends therefrom; but, notwithstanding the preference hereby declared, if after providing for the payment of dividends for any fiscal year on the preferred stock outstanding in such year, there shall remain a surplus of net profits of such year, the board of directors may declare and pay dividends upon any other stock of the company for such year out of such surplus net profits.

Two other cases dealing with this same question were cited during the proceedings. The first was that of *Nickals v. N. Y., L. E. & W. R. R. Company*, 30 U. S. 363 (L. Ed.), in which the decision was against the preferred stockholders. The other case cited was that of *Moran v. U. S. Cast Iron Pipe & Foundry Company* (1923), 95 N. J. Eq. 389. The decision in the latter case, on the contrary, was favorable to the preferred stockholders. Here it was held that dividends on noncumulative preferred stock might constitute a claim upon earnings in subsequent years. The theory in this case was to the effect that when the corporation failed to declare dividends out of earnings in any year, but put such earnings back into the property, an obligation was created that must be discharged before common dividends could be paid. The conflict between the earlier cases and the New Jersey case, however, was apparently created by the existence of a New Jersey statute that permits a corporation to accumulate and set apart a surplus or reserve fund from earnings to meet dividends, whether cumulative or noncumulative. On the basis of this statute, the New Jersey courts lean to the theory that preferred stockholders have a claim on the corporation for the amount of the preferred dividend during years when the corporation earns the dividend.¹⁰

In general, the preferred stockholder should not expect to receive unpaid dividends on noncumulative preferred stock whether or not earnings are present during the years when no dividends are declared. Noncumulative preferred stock, therefore, constitutes a decidedly weak type of security. Dividends once passed are forever lost. Also, if dividends are passed when

¹⁰ For a good brief discussion of the principal points involved in these cases, see "Legal Status of Noncumulative Preferred Stock," *Harvard Business Review*, Vol. 4, pp. 495-500. The preceding discussion is based in part on this article.

earned, the common stockholder benefits at the expense of the preferred holder. The weakness is explainable in the customary origin of noncumulative preferred as an incident of reorganization where the objective is to minimize the apparent loss of the bondholder by giving him some priority even though a weak one. The possible need for reconstruction at the expense of such noncumulative stock should be recognized in appraising its investment position.¹¹

Cumulative preferred stock. The cumulative feature is customary in issues that are sold in the course of ordinary financing. It does not, however, insure its owner the payment of dividends in every year that earnings exist. The dividend can be deferred at the will of the directors in order to permit the use of the funds to meet other pressing needs, particularly maturing indebtedness. In such situations, it should be noted that the cumulative feature is not complete protection because even if the accumulated dividends are paid eventually, the preferred stockholder loses the interest on the dividends for the period they are deferred. Furthermore, the interruption of the stream of income may be unfortunate for the investor dependent upon such payments to meet his living expenses and will generally cause the market value of the stock to decline.

The case of Bucyrus-Erie preferred. The settlement that the holders of Bucyrus-Erie 7 per cent preferred received in lieu of their accumulated dividends in August, 1936, will emphasize the significance of the cumulative feature. While the quarterly dividend was never completely passed, it had not been paid in full after October 1, 1932. Thus there was an unpaid arrearage of \$16. The preferred holders were offered in exchange for each share they held one new 7 per cent cumulative preferred share similar to the old share plus one share of new common stock and \$5 in cash. When listed, the common sold for substantially \$12.50 so that when added to the cash, it amounted to more than the \$16 of arrears in dividends.¹²

Methods of liquidating cumulative dividends. The method of liquidating accumulated preferred dividends just described is frequently used by corporations. It has advantages over a cash payment, which frequently weakens the cash position of the corporation to such an extent that future dividends on

¹¹ Some recent railroad reorganizations recognize this need more fully by providing for a "capital fund" which is made a claim ahead of the contingent charges.

¹² *Commercial and Financial Chronicle*, Vol. 143, (Aug. 15, 1936), p. 1067.

either class of stock may be jeopardized. Where the back dividends are liquidated in stock, either preferred or common, it is frequently possible to resume regular cash dividends on both classes of stock at the same time, and, if the preferred holder desires cash in lieu of the new stock, usually he can sell his additional stock in the market.¹³ In deciding whether or not to accept an offer in lieu of his unpaid accumulation and to waive his legal right to cash, the preferred stockholder must decide whether or not the cash or market value of what is offered is at least equal to the present or discounted value of the dividends which he can hope for if he waits for cash. Naturally, this discounted value of dividend rights is less than the face value of the unpaid accumulation, as allowance must be made for the loss of interest during the waiting period.

The cumulative feature, while it gives the stockholder real protection, is, however, quite different from the protection given the bondholder if interest is defaulted. In the latter case positive legal action may be taken. In the former case the preferred holder can take no action, except he can show fraud, but must wait in the hope that eventually the company will improve its position to such an extent that preferred dividends can be paid. That this may be a long wait is shown by the unusual case of American Hide & Leather Company, whose 7 per cent cumulative preferred stock showed an accumulation of \$217.75 per share in 1935, or over 31 years back dividends, when a recapitalization plan was accepted and new securities issued in liquidation of the claim.¹⁴

¹³ It does not always happen that the directors act as liberally as they did in the case of Bucyrus-Erie. Where large accumulations have piled up, the directors, who frequently control the common stock, often try to induce the preferred holders to make some sacrifices, on the plea of an equitable adjustment, in order that dividends may be resumed on both classes of stock. Take the case of the old Interboro-Metropolitan 5 per cent cumulative preferred stock in 1915. In order to give the common shareholders some chance to receive dividends, the preferred shareholders were asked to surrender their claim to unpaid dividends and to accept in lieu thereof new 6 per cent noncumulative preferred stock. As an inducement the directors offered to begin payment of dividends at once on the new stock. Regardless of his legal rights in a case of this kind, the preferred stockholder is faced with the practical advantages of "having a bird in the hand rather than two in the bush." The prospect of an immediate return usually induces the majority of preferred stockholders to accept terms of this nature, although they might, in a legal contest, get better terms.

¹⁴ For similar cases involving the liquidation of substantial accumulations, see the recapitalization plans of the International Mercantile Marine Company (1929) and the American Agricultural Chemical Company (1931); for a smaller accumulation, the plan of Goodyear Tire and Rubber Company (1936).

Preference as to assets. Preferred stock always means preference as to dividends but not necessarily as to assets. Preference as to assets, in the event of involuntary liquidation, is usually for the amount of the par value but is likely to call for a premium in voluntary liquidation. This premium assures the full operation of a redemption clause where such is present. The distinction between voluntary and involuntary dissolution is particularly necessary where the corporation is given the right to call or to redeem its preferred stock at a premium. Should the preferred holder be entitled to only \$100, or par, in case of dissolution, either voluntary or involuntary, it would be a simple matter for the directors to vote to dissolve the corporation and to form a new one in order to retire the old stock at par. In this way they might, in effect, succeed in retiring the present preferred stock without the payment of any premium. On the other hand, where preference as to assets is not specifically set forth in the stock contract, the assumption is that preferred stock is preferred in respect to dividends only and participates equally with the common on a per share basis in dissolution.¹⁵

It may at first appear that preference in respect to assets is of distinct value to the holder of a preferred stock. The idea is, of course, that such preference will afford him a real protection in respect to his original investment, or principal, in the event of financial difficulties. Such is hardly the case, however, for corporations as a rule do not liquidate their property except when they are in extreme financial difficulty, and then only after all other means for continuing the business have been exhausted. Long before this extreme condition has been reached, it is more than probable that the assets of the company will have been pledged or mortgaged, and that heavy bank loans will have been incurred which precede the preferred stock. Even where the assets are partially salvaged through receivership and reorganization, the preferred holders are usually required to make heavy sacrifices in order to rehabilitate the company. So we find in practice that preference as to assets may result in a strengthening to some extent of the

¹⁵ Dewing finds that preference as to assets has become quite common during the last twenty years. If Class A stocks are included, the provision is found in over two thirds of the outstanding utility issues and over nine tenths of the industrial issues. See Dewing, Arthur S., *Financial Policy of Corporations* (New York: Ronald Press Co., 3d ed., 1934), p. 50. Railroad issues are older and are very generally without preference as to assets.

preferred holder's position, but that this is a long way from assuring him that any substantial part of his original investment will be salvaged in case of financial reverses.

Redeemable or callable preferred stock. It frequently happens that preferred stocks are redeemable at some specified price, usually in excess of par. In fact, this provision is becoming increasingly common among new issues of preferred stocks, particularly public utilities. The reasons for the presence of this feature are very much the same as for bonds. The corporation desires to leave the way open for retiring the issue at some subsequent date, should the financial condition of the company so warrant. Where such redemption features are accompanied by a sinking fund clause providing that the corporation shall lay aside a certain amount each year out of earnings for retiring the preferred at the call price, we have a provision that may act to the advantage of the preferred holder, in that the equity behind the uncalled stock each year is increased as the total amount of the issue outstanding is decreased. Otherwise, the assumption is that the corporation will use the right to redeem its stock in much the same way that the callable feature is used to retire bonds. This provision is most likely to be exercised by the corporation at a time when interest rates are low and reinvestment is difficult. The reasons for this action are the same as in the case of bond issues. Preferred stocks are in the nature of fixed obligations. If refinancing can be consummated at a lower rate of interest, or at a lower rate of dividends in the case of preferred stock issues, it is to the advantage of the corporation to call in high interest or dividend securities and to replace them with bonds having a lower coupon rate or with preferred stocks having a lower dividend rate. Or, possibly, a long period of rising prices or easy money rates has so stimulated business and increased profits that the corporation finds it easy to retire its bonds or preferred stocks out of surplus. In either case, the contract runs in favor of the corporation and only in exceptional cases in favor of the investor.

Redemption through sinking funds has become a common device for aiding the investment standing of industrial preferred stock issues. From a study of 543 issues, put out between 1925 and 1930, it was found that over one half of the issues had a sinking fund provision. Among utility issues in the same period, this retirement plan was rare, being found

in only 7 out of 301 issues.¹⁶ The general tendency of large industrial corporations to eliminate claims prior to the common stock, and of utilities to maintain such claims as a permanent part of the capital structure, is evident. While, the purpose of such retirements is the strengthening of the capital structure, a secondary result is the support of the market, which may be particularly useful in the case of small issues having a narrow and inactive market.

Voting rights and preferred stock. The position of the preferred stockholder is sometimes jeopardized by withholding from him the right to participate in the management of the corporation. Frequently the sole voting power of the corporation rests with the common stockholder, and, even though the preferred stockholder is supposedly a partner in the enterprise and receives his investment return on this supposition, he is nevertheless often excluded from all voice in the management of the business affairs, except in reference to certain matters that vitally affect him, such as the borrowing of money through the issue of bonds or the authorization of more preferred stock.

Even those provisions that give the preferred holder the right to vote on such matters as the issuance of bonds or subsequent preferred stock may turn out to be of small value. This is especially true unless the directors of the corporation are at the same time prevented from incurring a large floating debt by means of heavy bank borrowing. In other words, if the directors incur a heavy floating debt, the proceeds from which are used largely for permanent improvements, the affairs of the company may eventually reach a stage where the preferred stockholders are obliged to approve an issue of bonds for funding purposes in order to avoid unfriendly action on the part of the banks, in the way of receivership proceedings, or of short-term creditors of the company.

On the other hand the preferred holder may have voting power equal to that of the common holder, or partial voting power. The degree to which voting power is extended in a given case is, of course, a matter that may be determined only by reference to the charter or by-laws of the corporation that set forth the preferred stock contract.

¹⁶Dewing, Arthur S., *Financial Policy of Corporations* (New York: Ronald Press Co., 3d ed., 1934), p. 51.

Contingent voting rights. Where the preferred stock is not accorded the right to vote in the first instance, a contingent right is frequently given;¹⁷ that is, voting control may pass to the preferred stock after a certain number of dividends have been passed. Thus, the preferred stock contract of the Phoenix Hosiery Company, provides that the common stock alone shall have voting power, except in default of dividends aggregating 7 per cent, when exclusive voting power shall be exercised by the preferred stockholders. Bayuk Cigars, Inc., 7 per cent preferred has a somewhat more elaborate contract. As a class, it has the right to elect directors, if at any time net quick assets shall amount to less than 125 per cent of stock outstanding; default exists in sinking fund payment for one year; or default exists in four quarterly dividends. The advantages of such contingent voting power may be more apparent than real. Coming as it does after dividends have been defaulted, it usually means that the preferred stockholders are handed the tiller after the boat has been run on the rocks. There are many instances at hand, among which must be included the Winchester Company and the Gorton Pew Fisheries, in which the condition of the company at the time the preferred holders came into voting control was so hopeless that the preferred holders derived but little solace from their rights.

Maintenance of liquid position. Various other provisions that are sometimes used to protect the preferred holder refer to the liquid position of the corporation. Thus, the charter might provide that no dividends be paid on the common that reduce the net quick assets of the company below 125 per cent of the par value of the outstanding preferred. While the details may differ in various cases where this kind of restriction is found, the underlying principle is the same. The purpose of the restriction is to prevent payment of cash dividends on common stock, where such payment tends substantially to injure the working capital of the company, and also to maintain sufficient liquid assets to provide for the retiring of the preferred stock at any time.

Some value may be said to attach to such a provision in that it anticipates a situation and may actually prevent it from materializing. Where such a provision exists, the common stockholders will naturally act more conservatively and, neces-

¹⁷ *Ibid.*, p. 62.

sarily, will attempt to maintain the company in a strong cash position at all times, the result of which action is beneficial to the preferred holder. On the other hand, should the earnings of the company decline, it is conceivable that it might become difficult or impossible to maintain the required liquid position. While the omission of common dividends at such a time would avoid aggravating the situation, it is not to be supposed that the directors could be compelled to increase net quick assets. In other words, the provision, while certainly valuable, does not assure the preferred holder that net quick assets will always be maintained in a certain ratio to the preferred stock outstanding.

Participating and convertible preferred stocks. Participating preferred stock would seem to combine the desirable investment attractions of both preferred and common stock. The ordinary priority over common stock is obtained, and yet participation in unusual earnings is allowed, usually after a stipulated rate has been paid upon the common stock. A convertible preferred stock must be exchanged into common stock before it can share in the extra return, but a participating preferred stock retains its preferential position while enjoying all the fruits of success, if any. Precisely because this class of stock is advantageous to the investor, it is not a desirable type of security for the corporation to issue, since it means that there are a greater number of shares over which earnings must be distributed in case the corporation becomes prosperous. It is therefore generally issued by corporations with a weak credit standing at the time financing is necessary. The desirable feature of participation or conversion is thus given to offset the low credit of the company. This does not mean, however, that participating or convertible stocks are issued by weak companies only, for it may happen that the company was obliged to make concessions in order to float the given issue satisfactorily because of its newness or because of temporarily unfavorable financial markets. At a later date the company's position may become better established, but by that time the attractions of these special features are likely to be balanced by an enhanced market price.

Diamond Match 6 per cent cumulative participating preferred. The preferred stock of the Diamond Match Company is a good example of a participating preferred stock. This

stock has preference as to assets and dividends. After the common has received \$1.50 per share, the preferred participates share for share with the common in any additional dividends declared until the preferred has received an aggregate of 8 per cent. In the event of any distribution of capital assets, the preferred stock is entitled to \$25 per share and accrued and unpaid cumulative regular dividends. Consolidations and mergers are not considered dissolutions.

Convertible preferred compared with participating preferred. Where a preferred stock is convertible into the common stock of a company, the situation is practically the same as when the bonds of a company are convertible into common stock. The preferred holder is given the right, under certain restrictions as to time and price, to convert his preferred issue into an issue that carries an unrestricted right to participate in the earnings of the company. This provision gives to the preferred holder a prior right to dividends while the company goes through its developmental period and, when it becomes successful, allows him a wider participation in earnings through conversion. The essential difference between a participating and a convertible stock is that the holder of the latter, upon conversion, relinquishes all preferential rights and becomes once and for all a common holder. The former type of stock, on the other hand, continues indefinitely to carry both preference and participation rights.

Variations in combination features in any preferred issue; how determined. We have up to this point merely described the more important types of preferred stocks, or, rather, the more important provisions found in typical preferred stock contracts. We have also attempted to weigh the value of such provisions to the holder of preferred stocks. The cumulative feature, restrictions upon the payment of common dividends except when net quick assets are ample, and participation features are all more or less valuable. Contingent voting rights, restrictions on borrowing, and preferences as to assets may prove to be of little or no value. There are, of course, different combinations of these features in various stocks, as well as other restrictions. It must be realized that the preferred stock contract is flexible and may be adjusted in the light of the particular situation at hand. In fact, the same company may have as many as three or four different types of

preferred issues outstanding at the same time, varying in status from a prior cumulative preferred stock down to non-cumulative,¹⁸ nonvoting, preferred stock.

Characteristics of preferred stocks. As a class, preferred stocks have come to be regarded by many shrewd investors as less desirable than bonds or common stocks. The feeling is that they possess the weaknesses of both and the advantages of neither. They have the limited return, except for the few participating and convertible issues, of a bond, but none of the legal rights in the event of default. Like common stocks, they bear the risks of ownership, but unlike them they have only a limited participation in any increased earnings. Such a strong statement probably does preferred stocks an injustice. Granted that income of preferred stocks is limited, one can still point to many corporations in which the preferred stock has received far more income than the common stock, and in which, so far as principal is concerned, price fluctuations are almost invariably more limited, judged on a percentage basis, for the prior issues. More valuable than generalization on the subject, however, is an examination of some of the studies which have been made of preferred stock performance. Since most of these studies have been made as comparisons with common stock performance, they are to be found in the next chapter. The major characteristics—yield, price stability, tax status, denomination, and purchasing power—will be stated here, however.

The yield from preferred stocks averages higher than that from bonds, as would be expected in view of the higher average risk. Even when groups of bonds and preferred stocks of similar statistical position are compared, a somewhat higher yield is expected from the latter because of the weaker legal

¹⁸ A good example of a complicated capital structure is the Associated Gas & Electric Company (1941). In addition to seventeen bond issues, this company has fourteen issues of stock, which are in five different classes. Six different issues of cumulative *preferred* stock have first claim to net profits, followed by five issues of cumulative *preference* stock. These two classes of preferred stock are divided into series, differing chiefly in the matter of dividend rate. They are followed by Class A and Class B stock, which are noncumulative and participating, rank third and fourth in their claims to dividends, and are prior to the common stock. Earnings, to the extent available, are distributable as follows: first, \$2 to the A stock; then, \$2 to the B stock; after which A may participate to the extent of a \$.50 extra; and then B to the extent of a \$.50 extra. If, after this distribution, the common stock receives in excess of \$2.50 per share, the B stock must participate for an equal amount per share and the A stock for one half of any such excess payment per share.

position and more limited market among trustees and institutions which are restricted by law in their investment policy.¹⁹ The differences in yield are likely to vary from time to time with changes in investment market sentiment.

If the concept of yield is limited to the cash dividend and the element of appreciation *excluded*, preferred stocks will ordinarily show a higher rate in relation to market price than will common stocks of similar quality.²⁰ This difference is attributable to the common practice of using a portion of the common stock earnings in the building up of the equity. Such reinvested earnings are the basis for a share of the market value of the common stock but not of the preferred stock, except possibly in an indirect way to the extent that improved equity increases the safety, though not the dividends, of a preferred stock. With corporations which disburse all earnings as dividends, so that the dividend is the total expected return, the yield on the common stock would tend to be higher than on the preferred stock, which enjoys a senior claim. At times when earnings are temporarily depressed, even this principle will not be effective, for the purchaser of common stock regards the dividend as a return decidedly smaller than that which he can hope for at a future time when it is expected that earnings will rise, and he is willing to buy on a low yield basis—that is, at a price which is relatively high in relation to the current dividend income.

Because of its priority, the dividend income from preferred stocks will also be steadier than that from common stocks, although the weak showing of many preferred issues in the depression years following 1929 has led to some skepticism as to the importance of this generalization. Thus a study of 498 companies with both kinds of stock, which passed the dividend on their common stock in 1931 and 1932, showed 53.9 per cent, or 268 companies, which were obliged to omit the preferred dividend in the same period.²¹ In 246 of the 268 cases, the omission of the preferred dividend took place within one year of the omission of the common dividend. A further study

¹⁹ See Standard Statistics Company's yields of high-grade industrial bonds and preferred stocks, p. 76.

²⁰ See comparative material at end of Chapter 11.

²¹ Horsfield, Mona M., "Is Preferred Stock Preferable?" *Barron's*, November 28, 1932, p. 5. For further discussion of the merits and weaknesses of this form of security see Lawrence, Herbert, "How Sound Are Preferred Stocks?" *Barron's*, November 27, 1939, p. 18.

of common stocks would have shown that, of those companies which continued to pay, very few were able to avoid reducing their payment on the common stock in the period 1929-1933.

If the yield concept is broadened to include appreciation as well as dividend income, the yield return in relation to market price would be expected to average somewhat lower but to show somewhat less fluctuation for preferred than for common stocks. Since the return of preferred stocks is fixed, the price movements would not be expected to show any particular long-term trend as in the case of common stocks, which tend to rise as a result of the reinvestment of earnings factor. Even a bond price series might show a slight upward drift as the bonds approached maturity, if it were made up of bonds selling at a discount. Preferred stocks have no maturity influence. Major price movements of preferred stocks are chiefly the result of changing business conditions which affect corporate earnings. In this respect preferred stock prices follow the movements of common stocks more closely than those of high-grade bonds, which are primarily influenced by interest rates.²²

Whether or not the purchaser of preferred stocks will gain appreciation or suffer depreciation will be determined largely by the market conditions at the times of purchase and sale. As far as preferred stocks are concerned such gain or loss is more ordinarily associated with the problem of "recovery of principal" than of "income." In this respect the investor's principal, when it is in preferred stock, stands a greater average chance of either loss or gain than when in bonds, and a lesser chance than when in common stocks.

But the investor should not fall back on these easy generalizations when he is faced with specific investment alternatives. A particular preferred stock may well be of a quality superior to that of the average run of bonds. This individual character is more significant in making selections than any average which is based chiefly on cases of a different quality. The failure to recognize the special qualities of the particular issue would be as improper as for a fire insurance company to measure the risk on individual buildings on the bases of the general loss average without regard to the type of building, occupancy, or neighborhood. Some leading factors that would differentiate

²² Sloan, Laurence H., *Security Speculation* (New York: Harper & Bros., 1926), pp. 184-188. See Chapters 7 and 8 for statistical material on market and income characteristics of preferred stocks.

investment risks among the preferred stocks would be: (1) the capital structures; (2) the type of business; and (3) the extent to which the stock was "seasoned" by time. Illustrations will be found in the table on pages 230-231, which records the performance of the preferred and common stocks of some leading companies that were paying dividends on both in 1929. The period is of particular interest because it covers the years of unusual business decline in the early 1930's. In the table, it may be noted that while 30 per cent of preferred stocks were paying nothing in 1934, 45 per cent of the common issues were also in that position; and while 12 of the 33 preferred issues were still paying the full rate in 1934, only 2 of the common stocks (even including American Tobacco) had that distinction.

Obviously, a common stock might offer a steadier income and even a more stable market price than a preferred stock of a company similar in every way except in capital structure, if the common were preceded by no prior issues and the preferred by a substantial bond issue. In a similar manner, the common stock of a food or a public utility company might show a more stable dividend record than the preferred stock of a steel or machinery company. And finally, if preferred stock purchases were confined to new, and so "unseasoned," issues, the final investment results would be almost certainly unfavorable, for the following reasons: first, because of the greater difficulty in predicting the outlook for such issues and so in making judicious selections, as compared with issues which have a history; and secondly, because new issues are almost always sold at or near par, which means that, with the conventional call price present, which limits appreciation, the possibility of loss is very likely to be greater than that of gain—a situation not true for old issues bought in the open market.²³

²³ Thus Dewing reports a study by S. F. Nicholson, covering 607 industrial preferred stocks issued between Jan. 1, 1915 and Jan. 1, 1923. The average price at the time of issue was 99, while the average price at the end of the period, Jan. 1, 1923, was 70½, after full allowance had been made for issues called at a premium. The median time of issue was late in 1918, and the average dividend rate promised a little over 7 per cent. It is pointed out that the total dividends were thus slightly greater than the average loss of principal. The factor of compound interest on dividends is not mentioned. The period was one unfavorable to weak industrial issues. See Dewing, Arthur S., "The Rule of Economic Profits in the Return on Investments," *Harvard Business Review*, Vol. 1, p. 462. A larger study of 1,477 issues, brought out in the period 1880-1920, with results carried through 1922, is described briefly by the same author in *Financial Policy of Corporations* (New York: Ronald Press Co., rev. ed., 1926), pp. 1199-1202. (Continued p. 232)

COMPARATIVE DIVIDEND RECORD OF PREFERRED AND COMMON STOCKS OF SOME LEADING COMPANIES
(Dividends per Share: 1929-1934)

NAME OF COMPANY	PREFERRED					COMMON						
	1929	1930	1931	1932	1933	1934	1929	1930	1931	1932	1933	1934
<i>Industrials</i>												
Allied Chemical & Dye Corp.....	7	7	7	7	7	7	6	6 ^a	6 ^a	6	6	6
American Can Co.....	7	7	7	7	7	7	5	5	5	4	4	4
American Car & Foundry Co.....	7	7	7	5.25	...	...	6	6	2.75	...	...	...
American Locomotive Co.....	7	7	7	5.25	...	...	8	4.50	1	...	...	...
American Sugar Refining Co.....	7	7	7	7	7	7	2.50	5	5	3.25	2	2
American Tobacco Co.....	6	6	6	6	6	6	5 ^b	6.25 ^b	6	6	5	5
Baldwin Locomotive Works.....	7	7	3.50	...	...	...	1.75	1.75	0.87	...	...	...
Bethlehem Steel Corp.....	7	7	7	5.25	...	1.75	3.50	6	4.50	0.50	...	...
J. I. Case Co.....	7	7	7	7	4.75	4	6	6	4.50	...	...	...
Colgate-Palmolive-Peet Co.....	6	6	6	6	6	6	2	2.50	2.50	1.75	0.25	0.50
Corn Products Refining Co.....	7	7	7	7	7	7	4	4.25	4	3	3 ^c	3
Deere and Co.....	1.40 ^b	1.40	1.40	0.65	0.20	0.30	1.20 ^b	1.20 ^d	0.90 ^d	...	...	...
E. I. DuPont de Nemours & Co., Inc.....	6	6	6	6	6	6	5.85 ^a	4.70	4	2.75	2.75	3.10
Firestone Tire & Rubber Co.....	6	6	6	6	6	6	1.60 ^a	1.45	1	1	0.55	0.40
General Motors Corp.....	7	7	5	5	5	5	4.30 ^b	3.30	3	1.25	1.25	1.50
B. F. Goodrich Co.....	7	7	5.25	...	...	...	4	2	...	...	...	...
Goodyear Tire and Rubber Co.....	7	7	7	7	3.25	5.50	2.50	5	3.50	0.25	...	...
International Harvester Co., Ltd.....	7	7	7	7	7	7	2.50	2.50	2.50	1.82	0.75	0.60
International Nickel Co. of Canada, Ltd....	7	7	7	7	7	7	0.90	1	0.45	...	...	0.50
National Biscuit Co.....	7	7	7	7	7	7	3 ^b	3.20 ^b	2.80	2.80	2.80	2.40
Shell Union Oil Corp.....	5.50	7	4.12	1.40	0.70
United States Steel Corp.....	7	7	7	7	2	2	8	7	5.50	0.50

PREFERRED STOCKS

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NAME OF COMPANY	PREFERRED					COMMON				
	1929	1930	1931	1932	1933	1934	1929	1930	1931	1932
<i>Railroads</i>										
Atchison, Topeka, & Santa Fe.....	5	5	5	5	4	5.80	10	10	10	2.50
Baltimore & Ohio.....	4	4	4	1	...	...	6.25	7	5.25	...
Kansas City Southern.....	4	4	4	3	1	...	3.75	5	3	...
New York, Chicago, & St. Louis.....	6	6	4.50	...	...	...	6	6	4.50	...
New York, New Haven & Hartford.....	7	7	7	3.50	...	...	4.25	6	5.50	...
Norfolk & Western.....	4	4	4	4	4	4	12	12	12	9
Southern Railway.....	5	5	5	...	...	...	8	8	6	...
Union Pacific.....	4	4	4	4	4	4	10	10	10	8
<i>Utilities</i>										
Brooklyn-Manhattan Transit Corp.....	6	6	6	6	6	6	4	4	4	2
Consolidated Gas Co. of N. Y.....	5	5	5	5	5	5	3.25	4	4	4
Pacific Telephone and Telegraph Co.....	6	6	6	6	6	6	7	7	7	7

d Also 6 per cent stock dividend, 1930; 1½ per cent, 1931.

e Issued 1929.

f Issued 1930.

a Also 5 per cent stock dividend.

b Adjusted for stock split-up.

c Also 1 per cent stock dividend.

0.75
2.25
6

In summarizing the characteristics of preferred stocks, we find that they are a type of investment intermediate between bonds and common stock. In legal form it is an ownership and not a credit instrument, and so has the tax status of stock. The dividend claim is prior to that of the common stock, with the result that it has the shrinking purchasing power of the bond in a period of rising prices. Its claim is junior to that of any bonds outstanding, which fact, coupled with the absence of creditor status, makes it a peculiarly weak form of junior issue in a period of crises. To the extent that the margin of safety is adequate, however, it will surpass common stocks in income stability.

While, for purposes of generalization, this halfway nature of the preferred stock must be emphasized, in practice the position of the individual issue must be considered. Quality will vary widely. On the one hand will be the very safe type, represented by the relatively few issues that are subject to no important prior claims and enjoy a substantial and stable margin of earnings over their own claim. Such issues will rank with high-grade bonds and, owing to prejudice and to the inability of certain important classes of buyers, such as commercial banks and fiduciaries, to purchase them in some states, may offer better yield and tax status. At the other extreme will be found those preferred stocks with a dividend claim so large in relation to current and prospective earnings that it virtually eliminates the hope of any return for the common stock, and so makes the preferred stock the actual residual claimant to income for all practical purposes.

In spite of the tendency to create preferred stocks that will

In marked contrast are the results of all industrial preferred stocks listed on the New York Stock Exchange, the rate of return being computed for each year on the basis of market price at the beginning of the year. The period 1920-1930 was favorable to common stocks and junior issues generally. The dividend yield alone and the total rate of return (dividends plus appreciation) are shown by years.

**DIVIDEND YIELD AND TOTAL RETURN ON INDUSTRIAL
PREFERRED STOCKS LISTED ON N. Y. STOCK EXCHANGE***

(By Per Cents)

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
Dividend Yield.....	7.4	7.1	6.2	6.2	6.1	6.1	6.2	5.6	4.9	5.2	5.3
Total Return.....	7.4	0.8	14.6	7.4	6.4	11.7	8.8	11.0	8.6	2.8	5.8

* From Bickel, R. H., *The Investment Performance of Industrial Preferred Stocks from 1920 to 1930*. An unpublished master's thesis, Northwestern University, 1931.

resemble bonds in form as much as possible in order to facilitate their sale, preferred stocks almost invariably show investment character inferior to bonds as a group in any statistical study, because any group will include many cases in which preferred stocks were issued when the market standards would not have permitted bonds, either because as large a debt as was permissible had already been incurred, or because earnings were so uncertain that it was improper to incur any fixed charges.

Common Stocks

Common stocks and what they represent. The present section of our study, it will be recalled, has been devoted primarily to the contract aspects of various types of securities. Attention was first given to the credit instruments of corporations—that is, bonds and notes. The distinguishing characteristic of this entire group of securities is the contractual nature of the relationship between the corporation and the lender. In each instance there is a definite promise on the part of the corporation to pay principal and interest and to carry out other stipulations in the interest of the bondholders. Preferred stocks were next discussed, and here we found a type of security which is based on a contract, it is true, but which carries with it contingent claims only against the corporation. That is, the corporation agrees to do certain things, such as to pay dividends, *only under certain conditions*. In considering, finally, common stocks, we find a security that supposedly represents or gives evidence of unrestricted ownership in the business after all prior obligations have been met. The term “residual” ownership may express the idea more clearly than unrestricted ownership, since most corporations have preferred stock and bonds outstanding, or at least some liabilities to ordinary creditors whose claims to assets and earnings precede the claims of the common stockholder. The latter, however, enjoy full ownership of the equity represented by the surplus of assets over prior claims and of all earnings after prior charges have been satisfied, but are likewise charged with all the obligations incidental to ownership.

Residual equity. This so-called residual equity in the business—that is, the ownership in the assets and earnings of the corporation after prior claims have been satisfied—is represented, ordinarily, by the common stock and surplus accounts on the books of the company. This position can be shown most readily by reference to the following simple balance sheet:

BALANCE SHEET—CORPORATION XYZ

<i>Assets</i>		<i>Liabilities</i>	
Cash	\$500,000	Accounts Payable.	\$250,000
Accounts Receivable	500,000	First Mortgage Bonds, 6% . .	750,000
Inventories.	500,000	Preferred Stock, 7%	750,000
Plant and Equipment.	1,000,000		
		Prior Claims of Outsiders. .	\$1,750,000
		Leaving for Owners of Outstanding Common Stock (par \$100)	500,000
		Profit and Loss Surplus. . . .	250,000
Total.	\$2,500,000	Total	\$2,500,000

In the preceding balance sheet, assets are carried at \$2,500,000. The various equities in these assets are represented by the several accounts on the liability side of the statement as follows: The first mortgage bonds have a claim against plant and equipment up to \$750,000. Corporate mortgage bonds are ordinarily a lien upon the real estate, including any improvements in the form of buildings, machinery, or fixtures affixed to it.¹ The next claim is that of the general unsecured creditors, in this case consisting of the \$250,000 owing to trade creditors and shown as Accounts Payable. If the bondholders were not fully cared for by the asset plant and equipment, they would fall in this group of unsecured creditors, with a claim against unpledged assets for the unsatisfied balance. Next in order is the claim of the preferred stockholders, totaling \$750,000. In other words, there are fixed claims against the assets of the corporation amounting to \$1,750,000. Whatever is left after the payment of these claims is the property of the shareholders and belongs to them ratably. By this we mean that each share of stock is entitled to its aliquot share of the entire remaining sum. We have assumed that these assets are worth just the amount at which they are carried on the company's books. In liquidation they may be worth more or less. Any shrinkage in the value of these assets applies first to the com-

¹ See similar illustration above, footnote 8, pp. 180-181.

mon stockholders' equity. Suppose, for example, that liquidation became necessary and the assets brought only \$2,000,000. All prior claims must be paid at par, so long as there are sufficient funds. In the assumed case this would be possible; but after the \$1,750,000 of fixed or prior claims have been satisfied at par, only \$250,000 remains for the common stockholder. On the other hand, if the assets should prove to be worth \$3,000,000 on liquidation, the common stockholders get all the increase, their return thus being not \$750,000, but \$1,250,000.

A like situation exists in respect to earnings. The various claims against income represented by the several security holders and creditors must be considered in the same order as their claims against assets. Let us assume that, after all costs of operating the business have been paid, a net income of \$100,000 is shown. The first claim against these earnings is for bond interest, amounting to \$45,000. Thereafter dividends must be paid on the preferred stock before any distribution may be made on the common.² In the present instance this amounts to \$52,500. The balance of \$2,500 is all that is available for the common stock. Again, let us assume that earnings increase to \$150,000. No further distribution is made to the bondholders or preferred stockholders, but all earnings after the above-mentioned charges have been met belong to the common shareholder. Thus do we find a further reason for calling the common stockholders' claim a residual one.

Significance of par value. What has been said in reference to the claims of the common stockholders in the assets of the company may logically raise a question in the reader's mind as to the significance of the par value of the common stock. It is at once apparent that the book value of the stock is not equal to the par value, as is true of that of the other securities. In the present case, for instance, the stated value of \$100 a share does not mean that the corporation owes the common stockholder \$100 for each share of stock held; it does not mean that the stockholder has the right to participate in the assets of the corporation only up to \$100 a share; nor does it mean that the stock is worth exactly \$100 a share. It means simply

² We have not considered trade accounts here. Where these are represented in part by notes payable, it is possible that some interest charges resulting therefrom will appear as a deduction from our income. Cash discounts, or cash discounts that have not been received, are items that are generally absorbed in operating expenses.

that for each of the 5,000 shares of the corporation's stock, at least \$100 is supposed to have been contributed as consideration by the original stockholders in order that they might avoid subsequent liability to creditors of the corporation. The use of a given par value makes it improper for unissued stock to be sold for a smaller amount, and for dividends to be declared in an amount that will reduce assets to a figure lower than the sum of the par value of outstanding stock and the debts of the company.

No par stock. It should be evident from the preceding discussion that the situation might have been expressed as well if the balance sheet had been set up somewhat as follows:

BALANCE SHEET—CORPORATION XYZ

<i>Assets</i>		<i>Liabilities</i>	
Cash	\$500,000	Accounts Payable	\$250,000
Accounts Receivable	500,000	First Mortgage Bonds, 6% . .	750,000
Inventories	500,000	Preferred Stock, 7%	750,000
Plant and Equipment	1,000,000		
		Prior Claims of Outsiders . .	1,750,000
		Common Stock (5,000 shares without par value, stated value, \$1 per share)	5,000
		Capital Surplus	495,000
		Profit and Loss Surplus	250,000
Total	\$2,500,000	Total	\$2,500,000

As in the balance sheet preceding the above, each share of stock represents one 5,000th of the total residual equity of the corporation, which is carried on the books at \$750,000, although the use of a stated par value has been avoided. The common stock account might have been equally well represented by any other figure of not more than \$500,000, the amount of the stockholders' original investment. A properly stated balance sheet should distinguish between the portion of the net worth which has been paid in by the stockholders and the portion created by profits left in the business, commonly called "Profit and Loss Surplus."³ The book value of the outstanding stock is the sum of the stock and surplus accounts, which

³The New York corporation law permits the "capital" to consist of either a stated value to be named in the certificate of incorporation or the aggregate amount of consideration received by the corporation for the issuance of shares, plus such amounts as the board of directors may transfer thereto. For approval of the second alternative, see Wildman, J. R., and Powell, W., *Capital Stock without Par Value* (New York: A. W. Shaw & Co., 1928), pp. 141-142.

are designated in accounting as the proprietorship or net worth accounts.

The use of par value shares by moneyed corporations, such as banks and trust companies, is much more satisfactory than their use by so-called industrial enterprises. In the first type of concern the assets consist chiefly of cash, short-term loans, and bonds which represent claims to a fixed number of dollars and so tend to have more constant dollar value than do inventories and other tangible property. The original investment of banks is also generally paid in cash and is therefore much more definite in value than the properties which are given in payment for the stock of manufacturing, mercantile, and mining corporations. These properties consist not only of items like real estate, machinery, and inventories, which vary in value, but also intangible assets, such as goodwill, patents, and leaseholds, the value of which is uncertain and debatable. In such ventures, therefore, it is argued that a closer approximation to the truth may be had if the capital stock is divided into a specified number of shares of no par value, each share simply stating that the owner is entitled to a proportionate part of the profits of the enterprise and a proportionate part of assets in case of dissolution.

The theory of no par value shares probably originated with the so-called "founders'" shares commonly used in English promotions to represent the interests of the promoters, and not an actual cash investment. Thus Lough, in *Business Finance*, writes:

In Great Britain it is a common practice to compensate the organizer of a corporation by giving him a final claim on earnings, which is valid only after all the claims of those who have furnished capital have been fully met. The shares which represent this claim are variously known as "founders'" shares, "management" shares, and "deferred" shares. Although this practice is frequently condemned, it seems at least as defensible as the custom in the United States in accordance with which the promoter of a corporation retains, by way of compensation, as much as he can of the common stock. Deferred, management, or founders' shares in England are usually of very small par value, most commonly one shilling per share. In case the corporation succeeds in fulfilling the expectations of its organizer, the founders' shares may come to receive large dividends and to possess a high market value altogether out of proportion to their nominal value. Indeed, there are instances in which separate companies have been formed in order to hold the founders' shares and to distribute interest in them in a more convenient manner.⁴

⁴ Lough, W. H., *Business Finance* (New York: Ronald Press Co., 1922), p. 83.

The chief objection to par value shares, from an investment standpoint, is that false ideas of value may be created by the statement of par value on the certificate. It is not at all uncommon, as first indicated, for the actual cash investment in an enterprise to be represented by bonds and preferred stock, and for the common stock to represent promotion services, goodwill, patents, or other intangibles. Whether these intangibles are actually carried on the books of the company or whether they are submerged by an inflation of tangible assets is immaterial. The essential point is that the par value does not necessarily represent an original cash investment of that amount, nor does it represent an equivalent market value of assets behind the stock. So long as this stock is held by the promoters who accept it in return for their services, no harm is done. But when, after the organization has been completed and the company has been operating for some time, the promoters unload the stock on the public, a false impression may be, and often is, created. A \$100 stock certificate selling at \$50 sounds like a bargain, although as a matter of fact no tangible asset value whatsoever may exist behind the stock.

In 1912, the state of New York, after considerable agitation, amended its corporation law to permit the issuance of stock with no par value. Since that time most of the other states have done likewise. Following the legal authorization of this kind of stock, many corporations have adopted it in corporate financing. When no par stock is properly used, the following advantages may be said to accrue:

1. The misleading, and sometimes fictitious, values which arise when units of ownership are given an official nominal value are wiped out.

2. The absence of par value permits the corporation to sell its shares from time to time at a price based upon current security market conditions. With a par value, stock could not be sold for less than par, which is impossible when the market price is lower. This may lead to an unwise issue of prior securities, although, in order to overcome the difficulty, the corporation may be able to amend its charter and lower or abolish the former par value.

The weaknesses which may develop more easily in no par than in par value stock are:

1. *Dilution.* Without the limitation of par value, directors may sell common stock at such disadvantageously low prices for later financing as to dilute the earning power of the shares of the old stockholders.

2. *Distribution of capital as dividends.* When a substantial part of the capital paid in by stockholders is shown as surplus rather than as capital stock, as is so generally the case with no par stock, it is easier for directors to declare dividends out of "capital" when earnings are inadequate, even though the practice is contrary to sound policy and is unlawful under some conditions.

3. *Taxation.* The state may tax stock without par value at a somewhat higher figure than it taxes stock with a suitable par value.⁵

Examples of use of no par stock. The method of showing stock without par value in the balance sheet has been suggested above. To ascertain the book value of a given share, the same general rule is followed as for stock with par value: the sum of the net worth accounts, capital stock, surplus, and reserves which are surplus under another name, are added together, and the total is divided by the number of shares outstanding.⁶

For example, the net worth accounts of the International Harvester Company, as of December 31, 1934, showed the following amounts:

Preferred Stock (par \$100).....	\$81,672,400
Common Stock (represented by 4,245,797 no par shares).....	169,831,880
Earned Surplus.....	40,622,312
Total Capital Stock and Surplus.....	\$292,126,592

The 4,245,797 shares of no par common stock are shown at \$169,831,880, or \$40 per share. When the earned surplus of \$40,622,312 is added, a total residual equity of \$210,454,192,

⁵ For a more complete discussion of no par stock from the corporation's point of view, see Guthmann, H. G., and Dougall, H. E., *Corporate Financial Policy* (New York: Prentice-Hall, Inc., 1940), pp. 89-96.

⁶ For further discussion, see Guthmann, H. G., *Analysis of Financial Statements* (New York: Prentice-Hall, Inc., rev. ed., 1935), pp. 35, 128. Sometimes the problem is complicated by stock preferred as to assets but shown in the balance sheet at a nominal par or stated value. Such stock may be treated as a prior claim for the amount it would receive in involuntary liquidation in computing the book value of the common stock. Unpaid accumulations on cumulative preferred issues should also be treated as a prior claim although not shown as a balance sheet item.

or almost \$50 of book value per share, without the inclusion of any surplus reserves results. The reserves for development and extensions (\$2,015,657), for fire insurance (\$5,407,712), and for contingencies (\$5,000,000) apparently do not represent allowances for asset valuation or for any definitely known liability or loss, and so presumably constitute appropriated surplus, which amounts to almost \$3 per share. Stock without par value, as illustrated here, has become very common since 1920.⁷

Voting control and common stock. It has probably been inferred from our discussion of bonds and preferred stocks that the voting control, or management control, of the corporation frequently rests with the common stockholder. In any event, the common stock almost invariably has the majority of voting power, even though the voting privilege may be shared with the preferred holders. However, the entire voting control may go to the preferred holders in cases where dividends on the preferred stock have been in default for a certain specified period.⁸

Division of common into two classes. The statement that voting control of the company usually resides with the common stockholder needs further qualification, however, in that during the past several years the common stock has been divided on some occasions into two classes: Class A, non-voting; and Class B, management, or voting, shares. The use of letters to designate the two classes may or may not be made; the essential point is the division of common stock into voting and non-voting shares.⁹

⁷In the last few years a tendency to restore par value, frequently at a low or nominal figure, has been shown.

⁸In reorganization the bondholders or other creditors may assume voting control, a power which is ordinarily obtained by forcing the stockholders to deposit all voting stock in a trust with a board of trustees appointed by representatives of the creditors. Under an unusual plan the merchandise creditors in the Good-year Tire and Rubber Co. reorganization (1921) not only secured the right to designate the trustees for the voting trusts but had a special issue of management stock created. The issue was for a nominal amount, \$10,000, and was entitled to preferential dividends not exceeding \$30,000 per annum, to be used to pay the compensation and expenses of five persons to be designated by the merchandise creditors' committee. This stock had the right to elect a majority of the board of directors so long as any first mortgage bonds (issued to pay off merchandise creditors) were outstanding. The unpaid balance of these bonds was retired by refinancing in 1927 and the voting arrangement discontinued.

⁹The student will do well to read Ripley, William Z., *Main Street and Wall Street* (Boston: Little, Brown & Co., 1927), especially Chapter IV.

Class A stock, dividend priorities. These two classes of stock—A and B—may be the same in all respects except in the matter of voting rights, or the Class A stock may be given certain priorities over Class B stock in respect to dividends because of its inferior position in the matter of voting power.¹⁰ The common stock of the United Light & Power Corporation is divided into two classes, A and B, which are alike in all respects except that sole voting rights are vested in Class B. On the other hand the Class A common stock of the Continental Baking Company resembles a second preferred stock. It is junior in its claim to dividends to an issue of ordinary cumulative preferred stock but is preferred over an issue of Class B stock for noncumulative dividends of \$8 per share and participates equally share for share with the B stock in any dividends over that amount. The two classes of stock have the same voting power.

Desirability of nonvoting stocks: Dodge Brothers common. The use of nonvoting common stocks may have elements of distinct danger for the holder, because control of the company is lodged in the hands of a few people who usually have a small investment in the business, if any. A pertinent example of this very situation is found in the recapitalization financing of Dodge Brothers, Incorporated, which took place in 1925.¹¹ Although this company has since passed into other hands and the situation here described no longer exists, it illustrates ad-

¹⁰This usage of classifying the common stock for the sole purpose of concentrating voting power, rather than for creating a kind of preferred stock, was most characteristic of the period of flamboyant financing just prior to the 1929 crash.

An unusual arrangement designed to concentrate not only voting power but also earnings participation is illustrated by the former capital structure of Servel Corporation. There were outstanding 115,000 shares of Class A and 64,000 shares of Class B stock, which were owned by the management. In the matter of dividends the A stock had a preference of \$.75 per share, and after this amount and a similar amount on the B stock had been paid, the two classes of stock shared equally as a class in any remaining earnings. This arrangement gave to the smaller number of B shares the same total amount of dividends, after \$.75 per share had been paid, as to the larger number of A shares. Furthermore, the capital stock was so authorized that only Class A stock could be issued for later financing so that the earnings of the Class B stock might subsequently be expanded through the sale of A stock, which might dilute the per share earning power of the latter stock.

¹¹Current examples of nonvoting stocks are the Class B common of Liggett & Myers Tobacco Co. and the Class B common of The American Tobacco Company. The voting control of The American Tobacco Company is vested in the preferred stockholders and the holders of the "common" stock.

mirably the undesirable factors of nonvoting stocks. The entire stock of the old company was purchased in the early part of 1925 by Dillon, Read & Co., at a price of \$146,000,000 in cash. From this corporation the purchasers abstracted about \$14,000,000 in cash. A new company was formed to which the assets of the old company were sold, in return for which the new company issued substantially \$75,000,000 of 6 per cent debenture bonds, 850,000 shares of no par value \$7 preferred stock, 1,500,000 shares of Class A common, and 500,000 shares of Class B common. Dillon, Read & Co. thereupon sold the debenture bonds at 99, and the preferred stock, including as a bonus one share of Class A common, at 100. The entire Class B common was retained by the bankers. Class A and Class B common were alike in all respects, except that Class A had no voting power for any purpose and Class B had exclusive voting power for all purposes.¹² It is apparent that the bankers who originally purchased the enterprise, even allowing for liberal selling commissions and expenses, received back from the investing public, which ultimately purchased the bonds and stock of the new company, more cash than was originally paid for the assets of the old company. And, in addition, the bankers held exclusive and irrevocable voting control of the new company through ownership of the Class B common, a control which represented no cash investment at all.

The situation, therefore, was one where the permanent control of the company was in the hands of a group of men who had no cash investment whatsoever in the business. Furthermore, their control was absolute and permanent, so long as they held the Class B stock and kept the concern solvent. The desirability of a situation of this kind from the standpoint of the Class A stockholder is debatable. It is true that the ordinary minority holder of common stock frequently neglects to use his voting power at all, or, when he uses it, does so in a perfunctory way. Yet, where there is but one class of common stock with full voting power, control of the company is often in the market. That is, the present management, so long as things go well, may actually control the company with as little as 25 per cent of the stock. In such cases, however, there is always the possibility of a coalition of minority holders, if the management should adopt questionable policies. In any event a vociferous minority interest is a great preventive when there

¹² *Commercial and Financial Chronicle*, Vol. 120, p. 1885.

is mismanagement. Furthermore, in cases where the management itself has a substantial cash investment in the business, it is likely to be more conservative than when it is running the enterprise and participating in profits with no investment of its own.

The use of nonvoting common stock is in conflict with the old theory that corporations should be run on democratic principles. It is true that complete democracy has never existed in corporate finance, except in rare cases. There have always been certain investors who were interested not so much in the actual fortunes of the concern, as in lending money and in securing a fixed return. Such investors have accomplished this result by taking notes or bonds, debenture or mortgage, as security, and by relying for safety on the value of the corporate property rather than on management. Even the preferred stockholder occupies a position somewhat analogous to that of the creditor, for he gives up his share in the management of the corporation in return for the priorities accorded him in the preferred stock contract.

The development of large corporations, where the individual stockholders number in the thousands or hundreds of thousands, however, has led corporation lawyers and financiers to seek other escapes from the factor of democracy in corporate management. For years efforts have been made to concentrate control without a larger cash investment, as by the formation of holding companies, by voting trusts, and by affiliations of interests among larger stockholders. Through the nonvoting device, owners of common stock, who have no protection of substantial priority, such as the bondholder or preferred stockholder has, are excluded from a voice in management no matter how badly affairs are handled by the clique who control through the voting issue, which may represent a promotional group without any cash investment. Power is denied those who bear the chief burden of risk.

On the other hand, it is not to be supposed that bankers or promoters can use this device in an unlimited fashion without assuming some responsibilities, for it has long been recognized as a common law principle that those elected to manage the affairs of a corporation accept a position of trusteeship. The corporate directors have always been obligated to use their power of management in good faith, and they cannot deal with the corporation to their own advantage. Since the depression

of the early 1930's, a keener sense of this quasi-fiduciary position has been apparent.¹³ The responsibilities of bankers, directors, and officers have been enlarged by law and the activities of the Securities and Exchange Commission.

How common stockholders are classed. Inasmuch as common stock represents the residual ownership in an enterprise, it may be said to represent ownership in economic goods—that is, factories, machinery, inventories, and all the other assets of the corporation. The common stockholder, therefore, in the typical corporation using credit, must be classed distinctly as a debtor and not as a creditor. This position arises whenever part of the corporate capital is acquired through the sale of bonds and notes, or of preferred stock. While legally preferred stock represents an ownership in the business, from an economic point of view it differs but little from bonds. This division of the security holders of a corporation into two classes, creditor and debtor, emphasizes one of the most fundamental distinctions that can be made between common stock and all other types of securities, including even preferred stock where it is not participating.

Since he occupied the position of the residual owner of the business, after all fixed obligations have been met, the common stockholder profits when prices rise and is at a disadvantage when prices fall. This is so obvious as to need little explanation. During a period of rising prices the residual equity of the business is worth more, if only because the physical assets of the business appreciate. Furthermore, rising prices usually mean increased profits, for inventories and goods in process increase in value before the manufacturing and selling processes are completed. Finally, it becomes increasingly easy to meet debts during a period of rising prices or depreciating money values, since dollars, in terms of goods, are relatively cheap.¹⁴

Common stock and normal growth. Another source of gain to the common stockholder, however, accrues quite independently of fluctuating prices. We refer to the gradual increase in population and to the consequent long-time growth in the earning power of any well-managed business that can thereby

¹³ For an early attack upon this problem, see Berle, Adolf A., Jr., "Protection of Non-Voting Stock," *Harvard Business Review*, Vol. 4, pp. 257-265. The New York Stock Exchange has refused since 1926 to list nonvoting common stock.

¹⁴ Note, however, the special problems of the regulated public service corporations in meeting a rising price level. See page 269.

enjoy an expanding market. A corporation which finances extensions largely out of current earnings may continue year by year to increase the earning power, as well as the asset value, behind its common stock, simply because its markets expand as population increases. As this growth takes place, the company is in a position from time to time to pay dividends in stock that represent recognition of those surplus earnings which are reinvested from year to year in the business instead of being paid out as cash dividends.

An illustration of this process was given in the picture of growth of the F. W. Woolworth Company in Figure 4 (page 90). The student of American industrial expansion will find a great many similar companies. As population growth slackens, however, it becomes more and more necessary to search carefully in order to locate industries and companies that continue to have growth possibilities permitting a profitable retention of earnings.

Two dangers beset the investor. The first is that he may pay so high a price for such stocks as to counterbalance the profit potentialities. Companies such as American Airlines (transport), United Aircraft (manufacture of aircraft), du Pont (chemicals), and International Business Machines (manufacture and rental of statistical machines) have come to be so popular as to sell generally at prices that discount considerable earnings growth. The second danger is that signs of senility may be overlooked. An industry may reach the stage where its markets are no longer increasing. It may either have reached the saturation point or it may be losing position to substitutes.

The operation of this method of accumulation by investment in common stocks with growth possibilities is indicated more fully in the illustrative material given later in this chapter. Annual earnings of such issues will fluctuate from year to year, reaching abnormally high levels during good years and sinking to low levels during years of depression, but over a period of years the retention of earnings should reflect itself in growing investment and earning power for the common shares. Because of the concealing effect of stock subscription rights and stock dividends, as they are ordinarily employed, upon the figures in which this growth is reflected, they will be analyzed at this point before our discussion of the investment performance of common stocks is concluded.

Effect of rights and stock dividends on market value of common stocks. The extent to which the market value of a corporation's stock equity advances as corporate earnings advance is not always reflected accurately by the current quotations for its stocks on the exchanges. The reason for this situation is that corporations frequently give stockholders rights to subscribe to new stock at less than the current market quotation, or else declare stock dividends, either in terms of their own shares or through the shares of subsidiary companies. We shall trace briefly the effects of such operations on the market value of the individual shares of a corporation's stock, with the idea of showing that the current quotations for the corporate stock cannot always be used to determine changes that take place in the value of the concern's total stock equity.

Let us consider, first, a corporation that frequently issues rights to its stockholders to subscribe to new capital stock. The common shares of corporation A, we shall assume, sold at 150 on January 1, 1934. On January 2, 1934, stockholders were allowed to subscribe to one new share for each two old shares held, at \$100 a share.¹⁵ The holder of 100 shares, then worth \$15,000, thus had the right to acquire 50 more shares by increasing his investment by \$5,000. His total investment, immediately after this operation, would have had a value of \$20,000.¹⁶ Let us now assume that, by January 1, 1937, the stock of this company was selling at \$140 a share and that further rights had been declared, permitting the stockholders to subscribe at par to one new share for each three shares held. Our investor, having 150 shares of stock, again acquires 50 new shares by investing \$5,000. If we were to compute the value of his holdings immediately after this operation, we should find that it would equal the value of his holdings on January 1 (140×150 , or \$21,000) plus \$5,000, or \$26,000 in all. Suppose now that on January 1, 1941, the stock is quoted at 145. The question is:

¹⁵ The rights so accorded are known as subscription rights. The rights attaching to each share of stock, which in the present case give the stockholder the right to subscribe to one-half share of stock, are known as New York rights. The right to subscribe to one new share of stock, in the present case consisting of two New York rights, is known as a Philadelphia right.

¹⁶ This will be explained more fully in a later part of this chapter. For the time being it is sufficient to point out that on January 1 his holdings had a market value of \$15,000. The holder, by subscribing to new stock, adds \$5,000 to his investment. Regardless of what takes place subsequently, the value of his 150 shares will be \$20,000 immediately after the subscription was consummated.

Has the investor made a capital gain during the period, even though the "per share" market quotation for his stock was less in 1941 than on January 1, 1934? This we can answer by going back to 1934 and noting the facts as they actually occurred. On January 1, 1934, our stockholder had an investment with a market value of \$15,000. Since that time he added \$10,000 in cash and, on January 1, 1941, he had 200 shares of stock worth 145 a share, or \$29,000 in all. Thus, although the stock was quoted at 150 on January 1, 1934, and at 145 on January 1, 1941, the investor, had he availed himself of his rights to subscribe, would have enjoyed a capital gain of \$4,000.¹⁷

Now let us consider the position of an investor had he sold his rights instead of exercising them by subscribing to new stock. The first question is: What would these rights be worth? This we may find out by referring again to our figures. The holder of 100 shares on January 2, 1934, had the right to subscribe to one share of new stock for every two shares of old stock held. This privilege must have had a value, since the subscription price was less than the market value of the stock. Had the original owner of the rights not wished to subscribe, he could have sold his rights to someone who did. However, the value of rights is not so great as one might at first infer. Immediately after a stock goes "ex-rights," its value declines. (A stock is "ex-rights" after the date set by the corporation for determining the list of stockholders of record to whom the rights are to be issued.) Let us again refer to our example. On January 1, 1934, two shares of stock represented an equity in the corporation worth \$300. On January 2 the corporation receives \$100 in cash for each new share of stock issued, which amount increases the value of the equity behind two old shares to \$400; at the same time, however, this operation results in increasing by 50 per cent the number of shares outstanding. There are now three new shares for two old ones. The stock accordingly declines in market value to

$$\frac{\$400}{3} = \$133.33 \text{ per share}$$

The rights attaching to one share of stock, therefore, will be worth

$$\frac{\$33.33}{2} = \$16.66$$

¹⁷ Computed by taking his January 1, 1934, holdings at \$15,000, adding thereto a subsequent cash investment of \$10,000, and subtracting from \$29,000.

That is, for each two shares of old stock, the holder, by adding \$100, may acquire a share of stock about to have a value of \$133.33. One half of the premium represents the value of the rights attaching to a single share. The value of this privilege may be computed by the following formula, where X is the required value, P the difference between the market and the subscription prices, and R the percentage rate of increase:

$$X = \frac{P \times R}{1 + R}$$

To revert to our figures, the holder of 100 shares who, on January 2, sold his rights instead of exercising them received \$1,666 in cash. On January 2, 1937, the total value of his rights, similarly computed, was \$1,000. The total sum realized by the sale of rights therefore amounted to \$2,666.66. On the other hand, there is a loss of \$500, because our second investor's stock was quoted at only \$145 a share at the end of the period, contrasted with a quotation of \$150 at the beginning of the period. The total net gain in this case is therefore \$2,166.

It is important for us to understand why the gain is less in the second case than in the first. The essential reason is that when a stockholder sells his rights instead of exercising them he really disposes of a part of his investment in the enterprise. In the present case, after the first rights had been exercised, the stock fell in value from \$150 to \$133.33 a share, an amount represented by the value of the rights attaching to each share. Consequently, the man who sold his rights invited a new holder to acquire new stock by adding to the corporation's assets only \$100 for each share acquired, as contrasted with a previous value for this equity of \$150. The value of the total assets, or net worth, of the corporation is thus increased at a slower rate than is the number of shares of common stock outstanding. The holder who fails to exercise his rights therefore suffers a loss in his proportionate ownership in the corporation's assets, the amount of the loss being measured by the value of his rights. In each instance the stock recovered some of the losses incurred when it sold "ex rights." The first man, by increasing his holdings in both instances, carried more stock than the second, and therefore made a profit on a greater number of shares as the result of the price advances in the stock.

Effect of stock dividends on current quotations. A second type of operation that destroys the validity of current stock

quotations as a measure of the real increase in the market value of corporate equities is the declaration of stock dividends. Let us assume that corporation A, of whose common stock our investor holds 100 shares, declares a stock dividend of 100 per cent payable January 2, 1934, to the stockholders listed on the books of the corporation on January 1, 1934. On January 1 the stock is quoted at 150. On January 2 the stock sells "ex dividend" at \$75 per share, for two shares are now outstanding in place of one old share, although no change has taken place in either the assets or the earning power. By January 1, 1937, however, the stock advances to 100. On January 2, 1937, another stock dividend of 50 per cent is paid, and on January 1, 1941, the stock sells at \$90 a share. What is the market value of the equity represented by one original share of stock? On January 2, 1934, our investor got one share of new stock for each old share held, giving him at that time a total of 200 shares. On January 2, 1937, he received 100 more shares, giving him 300 shares in all. The value of his holdings was \$15,000 on January 1, 1934, and \$27,000 on January 1, 1941. Thus, although the stock was quoted at 60 points less in 1941 than on January 1, 1934, there had been an increase of 80 per cent in the value of this man's original holdings, and he was not required to advance any more cash. Much the same process takes place when the stock of subsidiary companies is used to pay a dividend. Unlike a stock dividend, such a distribution diminishes the amount of assets of the corporation, but like the stock dividend, it leaves unchanged the total value of what the stockholder owns. He merely owns directly what he previously owned indirectly through his corporation.

The ordinary market averages as quoted in current publications fail, over a period of years, to show in true fashion the increase that takes place in the market values of stock equities. In most of the charts published, the curve for industrial stock prices fails to give a correct idea of the real increase that takes place in the market values of ownership equities over the period covered, and the reason is that many corporations give subscription rights to their stockholders and declare stock dividends during the period.

Figure 10, however, which is constructed on an entirely different principle, shows the way in which ownership equities in corporations increased over a period of years. Here it is assumed that an investment of approximately \$1,000 is made, on January

1, 1901, in the common shares of twenty representative common stocks, chiefly industrial, at the then existing prices. The market value of this original investment of about \$20,000, with proper adjustment for stock dividends and rights, is then traced through each year for the period from 1901 to 1932.

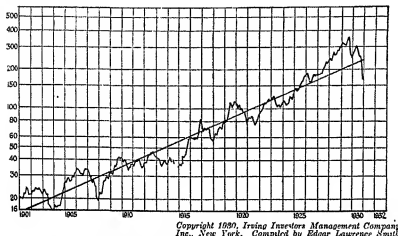


Figure 10—An Index of the Price Level for Industrial Stocks, Showing Long-Term Upward Trend.

STOCKS USED

American Agr. Chem.	American Woolen
American Can & Foundry	Consolidated Gas of N. Y.
American Coal Mining	General Electric
American Ice	International Paper
American Linseed	National Biscuit
American Malting	Pacific Mail
American Smelting	Standard Oil of New Jersey
American Sugar Refining	U. S. Leather
American Tel. & Tel.	U. S. Rubber
American Tobacco	U. S. Steel

A study of the chart shows the variations in the market value of the principal over a substantial period. The stocks selected were industrial equities, except for American Telephone & Telegraph and Consolidated Gas of New York, and were drawn from the largest companies at the time of original selection. Since in this, as in any list of any size, are included a number of companies which have fared badly, the certainty of achieving good results is dependent upon diversification, preferably among twenty or more reasonably well-selected common stocks. The

factors which operate to give such satisfactory capital gains will be summarized after certain other studies have been surveyed.

Common stocks versus bonds. Several interesting studies have been made in recent years with the idea of determining the relative investment merits of common stocks. One of the very first important statistical studies was published in 1925 under the title *Common Stocks as Long Term Investments*.¹⁸ The risks of bond investment and the advantages of common stocks when the commodity price level is rising were clearly indicated. A number of hypothetical tests were made, covering various periods, to determine the relative income and appreciation which would have been derived from the investment of \$10,000 in high-grade bonds and a similar sum in common stocks. The results of these tests are summarized in the following table:¹⁹

Test No.	Period	Total Advantage of Stocks over Bonds*
1.	1901-1922: 22 years	\$16,400.94
2.	1901-1922: 22 years	9,242.26
3.	1901-1922: 22 years	21,954.72
4.	1880-1899: 20 years	12,002.04
5.	1866-1885: 20 years	2,966.85
6.	1866-1885: 20 years	-1,012.00
7.	1892-1911: 20 years	11,723.80
8.	1906-1922: 17 years	6,651.01
8a.	1906-1922: 17 years	4,938.08
9.	1901-1922: 22 years†	18,734.72
10.	1901-1922: 22 years†	3,329.72
11.	1901-1922: 22 years†	17,140.25

* Based on an investment of approximately \$10,000 in ten diversified common stocks of large companies and an equal amount of high-grade bonds.

† Railroad stocks.

The stocks used in these tests were selected on an arbitrary or mechanical basis in order to avoid the danger of being influenced by hindsight. In nearly all cases the stocks used were the ten most active stocks at the beginning of the period studied. No effort was made to select "sound" stocks. Probably a greater profit might be expected had this been done, although this possibility is made to appear somewhat doubtful by the results of a comparative study, cited below, in which the actual investment record of a group of fire insurance companies in common stocks showed smaller profits than accrued from a theoretical commit-

¹⁸ Smith, Edgar L., *Common Stock as Long Term Investments* (New York: The Macmillan Co., 1925).

¹⁹ *Ibid.*, p. 20.

ment in the stock market leaders included in the Dow-Jones averages. Varying periods were likewise used in an effort to cover intervals of falling as well as of rising prices and to use years unfavorable as well as favorable for beginning and ending the two investment programs. In every case except one, it will be observed that the results are more favorable to the purchaser of stocks than to the purchaser of bonds. However, the limitations of the study are indicated by the fact that although twelve cases are given, they represent only five different initial years (1866, 1880, 1892, 1901, and 1906) and four different final years (1885, 1899, 1911, and 1922). An important criticism is that only three of the cases (Nos. 4, 5, and 6) fall within a period marked by declining commodity prices—that is, between the years 1865 to 1896. Of the three cases which do fall within such a period, one case is favorable to bonds (No. 6), another shows one of the lesser differences (No. 5), and only the third (No. 4) shows a distinctly favorable balance for common stocks. Furthermore, although in Test No. 4 the common stocks were stated to be those of five industrial and five railroad corporations, the five industrials were more nearly of the utility type (Adams Express, American Express, Wells Fargo Express, Pullman Palace Car, and Western Union Telegraph), which tends to fare better than industrials in a period of declining commodity prices, because operating expenses tend to adjust to the decline more rapidly than their somewhat inflexible rate structures.

The analyses of Rose are of greater interest because: (1) they included actual investment records as well as hypothetical cases; (2) the results were presented as annual rates of return at compound interest; and (3) the results were also shown on an annual basis so that they could be studied with any desired beginning and ending years, thus eliminating the influence of arbitrarily selected beginning and ending dates.²⁰ The experience of the twenty-five largest fire insurance companies was examined for the twenty-two years 1905 to 1926, inclusive. These companies were used because they are permitted to invest in both stocks

²⁰ Rose, Dwight C., Vol. I, *A Scientific Approach to Investment Management* (1928); and Vol. II, *The Practical Application of Investment Management* (1933). (New York: Harper & Bros.) Certain figures are continued to 1938 by Rose in "Relation of Investment Policy to Result of the Twenty-five Largest U. S. Fire Insurance Companies," *Investment Counsel Annual*, 1939, pp. 124-143. This further comparison is still favorable to stocks but the importance of the period selected for study may be seen in Chart III, page 127. Average return from bonds 1908 to 1938—4.43%; from stocks—6.05%.

and bonds and published regular reports. The period was one highly favorable to common stocks as compared with bonds. The rate of return was computed for each year as the amount of cash income (interest or dividends) plus any market appreciation or minus any depreciation in relation to the market value of the given investments at the beginning of the year. On this basis, the average annual return earned during the period by these companies from bonds was 4.73 per cent as against 7.24 per cent from all stocks. Unfortunately the data did not permit separate computations for preferred and common stocks, but the former averaged only about one fourth of all stocks held over the period studied.²¹ The higher return from stocks was chiefly the result of appreciation, rather than higher dividend yield, and came mostly from the common stocks. The company that showed the highest average return, 6.37 per cent, held a large proportion of stocks, 61.2 per cent of total assets; while the company with the lowest return earned but 3.92 per cent and had a high proportion of bonds. The corresponding averages (arithmetic means) for the 27-year period ending five years later in 1931 were 4.95 and 3.02 per cent, respectively. (Had the latter percentages been computed by the correct geometric mean, as suggested in footnote 25 below, they would have been 4.55 and 3.22 per cent, respectively.) The asset proportions of these two companies are shown in the following table:²²

PERCENTAGE STATEMENT OF ASSET DISTRIBUTION: 1926

	<i>Company with Highest Return</i>	<i>Company with Lowest Return</i>
Bonds.	25.1%	73.0%
Common Stocks.	38.8	11.2
Preferred Stocks.	22.4	1.1
Total Bonds and Stocks.	86.3	85.3
Mortgages and Collateral Loans. ....	.9	2.7
Bank Deposits.	8.4	7.0
Real Estate.	4.4	5.0
Total Assets.	100.0%	100.0%

The performance of the common stock market leaders which constituted the Dow-Jones industrial and railroad stock averages during this period was much more spectacular. The aver-

²¹ *Ibid.*, Vol. II, pp. 41, 44.

²² *Ibid.*, Vol. I, p. 112.

age annual return for each group and the amount arising from appreciation alone are shown in the following table:²³

ANNUAL AVERAGE RETURN AND APPRECIATION FROM
INDUSTRIAL AND RAILROAD COMMON STOCKS
INCLUDED IN DOW-JONES SERIES*

Period	RAILROADS		INDUSTRIALS	
	Total Return	Appreciation	Total Return	Appreciation
Jan. 1, 1901 to Jan. 1, 1910 . . .	8.86%	5.14%	11.90%	4.48%
Jan. 1, 1910 to July 1, 1921 . .	-.62	-5.32		
July 1, 1921 to Jan. 1, 1928 . . .	19.44	14.60		
Total Period: 1901-1928 . . .	7.24	2.76	13.20	7.80

* Occasionally includes preferred stock, usually speculative.

The same series, when carried to January 1, 1933, showed substantially lower percentages. The average rate of return, including both cash income and appreciation or depreciation for the 32-year period 1901 to 1932 inclusive, was but 1.36 per cent for the railroad stocks and 7.84 per cent for industrial stocks. The appreciation factor alone would have equalled a negative return of -3.52 per cent for the railroad stocks and a positive return of 2.40 per cent for industrials.²⁴

One of the most careful comparative studies of preferred and common stocks is that of Jackson, covering corporations with both types of issues quoted on the leading stock exchanges of the country for the years 1887 to 1925.²⁵ The results as a whole

²³ *Ibid.*, Vol. I, pp. 139, 147.

²⁴ *Ibid.*, Vol. II, pp. 230, 244. The percentages were not given as in the previous volume and so were computed from the data, the geometric mean suitable for semiannual compound interest being used, as it was by Rose in the table shown above, for the years 1901-1928. The 32-year accumulation from an initial \$100, the return compounded semiannually, amounted to \$145.79 for rail stocks, and \$1172.69 for industrial stocks. The "appreciation" factor alone would have reduced an initial \$100 to \$32.12, giving a net loss in the case of rail stocks, and would have increased it to \$214.64 for industrial stocks.

²⁵ Jackson, James Roy, "Common and Preferred Stocks as Investments," *Journal of Business*, July and October, 1928, Vol. I, pp. 294-323, 397-416. A statement on methodology is given, valuable to the student because some writers have even employed faulty mathematics which bias the results in favor of common stocks. Two frequent errors of this type are: (1) the failure to allow for compounding of interest in measuring the influence of appreciation; and (2) the use of the arithmetic mean in averaging rates of return for a period of years. For example, the first error would treat 100 per cent appreciation over a ten-year period as amounting to 10.0 per cent per annum, when actually such appreciation equals 7.0 per cent interest, compounded semiannually. An example of the second error may be shown by taking the arithmetic mean of an appreciation of 100 per cent in one year followed by a 50 per cent depreciation, which would give an "average" of 25 per cent gain per year. Actually, the two changes represent a zero gain, a

were favorable to common stocks as compared with preferred stocks when the return is regarded as the sum of dividends and appreciation. The results are stated by years in the table on page 257, both in annual and in summary form for the whole period.²⁶

The table shows that, although the common stock return averaged higher in all three groups, it was higher in only 19 out of the 39 years for railroad issues and in but 19 out of 37 years for industrial issues. Jackson concludes:²⁷

In general, the investor who could afford to diversify earned a larger return by buying common stock, but we must remember that our results, in large measure, are drawn from a period of rising prices. The investor who could not diversify; but who bought common stock, did better or worse, depending for the most part upon his good fortune or good judgment in picking the right companies, not primarily because he picked common stock in preference to preferred stock.

Such data as he found available pointed to this conclusion. Thus the few railroad stocks available in the period 1886 to 1896, the latter year marking the end of a period of declining commodity prices, showed an average annual return of but 0.9 per cent for the common issues as against 6.6 per cent for the preferred issues. The industrial common issues from 1891 to 1896 showed a negative average annual rate, -0.4 per cent, as against 4.5 per cent for the preferred issues.²⁸ These results appear at variance with those of Rose, which during a later period showed that industrial common stocks enjoyed a return in greater excess over normal interest rates than would seem to be explainable solely from the changes in the commodity price level.²⁹ How-

result which is obtained from the geometric mean of the relatives (one plus the percentage of return or gain). The formula for the average return per period thus computed would be:

$$\sqrt[n]{(1 + i_1)(1 + i_2) \dots (1 + i_n)} - 1$$

in which i is the annual or semiannual rate of return and n the number of interest periods. Since appreciation and extreme price fluctuation are more characteristic of common stocks than either preferred stocks or bonds, both of the errors mentioned tend to make for a superior showing of the common stocks.

²⁶ *Ibid.*, pp. 312, 313, 314. The rates of return in the summary are computed from the tables on pp. 400, 402, 404.

²⁷ *Ibid.*, p. 416.

²⁸ *Ibid.* Computed from tables on pp. 400, 402.

²⁹ Rose, Dwight C., Vol. I, *A Scientific Approach to Investment Management* (1928), p. 138; and Vol. II, *The Practical Application of Investment Management* (1933), p. 62. (New York: Harper & Bros.)

ANNUAL RATES OF RETURN (CASH INCOME AND APPRECIATION)
ON LISTED PREFERRED AND COMMON STOCKS

(Return Measured for Twelve Months Ending May 1 of Given Year)

Year	RAILROADS		INDUSTRIALS		PUBLIC UTILITIES	
	Common	Preferred	Common	Preferred	Common	Preferred
1887.....	66.5	39.8	- 3.9	53.6	...	..
1888.....	-21.5	-11.3	60.1	12.7	...	...
1889.....	3.2	35.0	-36.6	6.7	...	...
1890.....	15.9	17.6	...	...	...	...
1891.....	- 7.1	- 4.1	...	...	...	...
1892.....	17.7	14.3	22.2	23.2	37.7	18.8
1893.....	-16.0	- 8.6	10.4	4.1	...	...
1894.....	-21.2	-15.0	-14.9	-11.5	...	...
1895.....	5.3	6.0	1.3	9.1	...	...
1896.....	-10.6	4.5	-15.6	0.8	...	...
1897.....	9.6	- 6.7	-18.3	- 4.4	...	...
1898.....	42.7	33.9	33.3	17.1	...	...
1899.....	60.5	55.3	134.5	72.2	29.2	22.9
1900.....	17.0	7.8	-24.4	- 5.3	79.2	39.4
1901.....	108.7	46.8	23.3	9.6	22.5	12.1
1902.....	37.2	17.6	15.3	13.0	24.8	12.6
1903.....	- 9.3	- 6.9	- 6.5	- 1.5	-45.7	-23.4
1904.....	-24.5	-13.7	-29.3	- 8.9	-19.4	- 4.8
1905.....	46.5	29.0	86.6	41.3	85.4	27.7
1906.....	13.9	7.2	31.3	9.3	14.1	1.8
1907.....	-18.7	-12.2	-10.8	- 4.4	-12.0	- 7.8
1908.....	-16.6	-14.6	-18.2	- 7.8	-25.7	-13.6
1909.....	74.2	48.1	54.4	31.3	54.2	35.3
1910.....	- 6.8	- 2.3	3.5	1.8	3.2	0.7
1911.....	- 2.1	1.3	0.1	6.5	1.6	0.3
1912.....	3.2	5.4	16.9	6.2	6.1	7.7
1913.....	-17.6	-13.7	-10.6	- 2.6	-14.3	- 5.1
1914.....	-10.3	-14.9	4.3	4.1	-10.2	- 2.7
1915.....	2.9	- 5.9	11.5	- 3.4	7.9	- 1.7
1916.....	16.9	5.5	76.4	40.7	4.5	- 1.4
1917.....	4.7	- 1.7	13.3	0.1	- 5.8	- 7.6
1918.....	-33.9	-18.5	- 6.4	- 5.4	-12.6	-16.1
1919.....	28.5	13.4	50.5	26.6	- 7.8	- 9.8
1920.....	- 6.2	- 7.6	17.4	1.4	-14.7	-20.2
1921.....	1.6	- 1.6	-14.2	- 3.7	12.6	7.3
1922.....	48.8	41.4	21.3	15.5	35.1	23.8
1923.....	- 9.9	- 3.1	4.1	4.4	49.1	15.5
1924.....	13.3	15.3	-12.4	- 3.0	- 1.7	0.5
1925.....	69.6	34.7	42.1	26.0	52.2	21.5

SUMMARY OF TOTAL RESULTS FOR WHOLE PERIOD

Accumulation from \$100 in Initial Year	\$2,115.00	\$1,106.00	\$2,759.00	\$1,238.00	\$700.80	\$224.90
Equivalent Average Rate of Return per Annum (semiannual com- pounding)	7.8%	6.3%	10.0%	7.6%	7.3%	3.0%

ever, a considerable number of leading industrial corporations have bonds and preferred stock outstanding, and the appreciation of property and inflation of profits accruing from the invest-

MARKET VALUES AND CASH INCOMES OF BONDS AND COMMON
AND PREFERRED STOCKS OF TEN INDUSTRIAL CORPORATIONS
WITH FUNDED DEBT

(Market Values as of January 2 of Given Year)

Year	MARKET VALUE			DIVIDENDS		Interest on Bonds
	Common	Preferred	Bonds	Common	Preferred	
1908. . .	\$10,000.00	\$10,000.00	\$10,000.00	\$ 446.22	\$ 548.04	\$ 614.15
1909. . .	20,420.75	14,797.89	11,437.71	429.57	618.71	613.14
1910. . .	26,839.51	16,788.29	11,739.86	375.24	671.55	608.10
1911. . .	18,598.27	14,077.88	11,490.09	272.94	671.55	568.73
1912. . .	14,860.28	12,445.82	11,095.21	189.61	708.59	568.82
1913. . .	15,168.33	12,884.33	11,146.85	266.18	1,502.06	581.32
1914. . .	11,298.73	11,440.17	10,659.95	287.18	757.71	559.91
1915. . .	10,915.51	10,762.33	10,450.10	474.41	651.25	559.13
1916. . .	24,024.95	13,085.28	10,875.02	1,267.89	2,173.02	566.19
1917. . .	33,012.20	13,503.87	11,017.49	2,282.80	1,364.29	566.19
1918. . .	24,468.93	11,646.14	10,318.29	2,252.50	934.67	576.41
1919. . .	24,431.74	11,991.01	10,422.31	1,658.71	1,074.78	576.41
1920. . .	40,744.91	13,091.88	10,373.15	1,474.82	1,004.30	478.56
1921. . .	20,987.88	10,480.44	9,252.13	724.37	744.65	570.09
1922. . .	20,912.82	10,663.01	10,143.83	364.78	583.05	570.09
1923. . .	23,819.67	10,877.77	10,441.49	752.64	772.16	570.09
1924. . .	23,089.21	10,519.80	10,298.06	1,299.55	709.67	581.70
1925. . .	32,344.06	11,270.67	10,583.69	1,407.28	694.58	591.43
1926. . .	40,446.58	11,696.04	10,752.26	1,679.84	694.58	608.23
1927. . .	39,803.83	12,068.07	11,175.37	1,967.65	783.51	608.23
1928. . .	51,833.69	13,547.74	11,492.67	2,020.73	714.83	601.89
1929. . .	70,936.42	13,413.91	11,116.41	2,367.01	654.94	619.65
1930. . .	53,418.32	12,608.59	11,085.44	1,635.97	796.28	616.25
1931. . .	29,078.16	9,247.64	10,533.88	1,605.52	562.65	615.36
1932. . .	10,629.76	4,595.89	8,000.57	.....	.....	.....
Totals . . . . .	.....	.....	.....	\$27,503.41	\$20,391.42	\$13,989.57

ment of these claimants to a fixed amount would logically lead to profits for the common stock in excess of what might be expected from a measurement of the rise in commodity prices. In

turn, common stocks in corporations that use borrowed or preferred stock funds would be likely to suffer more than is usual in a period of deflation.

Rodkey has also prepared a valuable and interesting study comparing common and preferred stocks of leading corporations

MARKET VALUES AND CASH INCOMES OF COMMON AND
PREFERRED STOCKS OF TEN INDUSTRIAL CORPORATIONS
WITHOUT FUNDED DEBT

(Market Values as of January 2 of Given Year)

Year	MARKET VALUE		DIVIDENDS	
	Common	Preferred	Common	Preferred
1908	\$10,000.00	\$10,000.00	\$ 262.87	\$ 894.44
1909	17,010.90	13,243.15	366.23	899.64
1910	20,487.19	14,086.64	308.57	912.86
1911	13,411.58	12,109.65	283.26	851.18
1912	13,925.45	12,412.21	292.52	839.39
1913	18,299.55	13,088.00	283.26	744.33
1914	17,542.94	12,425.60	434.24	693.47
1915	15,251.08	11,912.87	283.26	642.60
1916	37,989.00	14,979.33	730.95	716.99
1917	34,049.66	16,118.52	1,429.39	1,137.81
1918	38,331.68	16,560.96	1,221.41	1,511.35
1919	57,730.85	18,980.04	2,941.50	1,482.32
1920	97,446.14	20,188.10	4,454.18	1,475.62
1921	62,441.64	17,462.06	2,002.04	1,219.96
1922	47,796.04	15,143.24	816.31	578.30
1923	52,035.65	16,313.43	943.64	573.16
1924	42,500.94	14,295.76	1,003.62	590.78
1925	62,217.52	17,804.58	2,817.49	1,369.91
1926	71,111.77	20,337.48	3,695.43	1,629.13
1927	74,574.89	20,363.95	3,812.71	1,589.24
1928	91,506.16	21,580.61	4,600.86	1,188.74
1929	105,616.99	21,232.56	4,048.93	1,062.77
1930	86,697.05	19,159.81	3,081.92	1,061.44
1931	36,874.01	16,959.34	1,602.51	1,045.14
1932	16,663.13	11,113.63	.....	.. ..
Totals . . . . .	.....	.....	\$41,777.10	\$24,710.57

whose securities were listed and most active on the New York Stock Exchange during the period 1908 to 1932.⁸⁰ Two of the

⁸⁰ Rodkey, R. G., *Preferred Stocks as Long-Term Investments* (Ann Arbor: University of Michigan, Bureau of Business Research, 1932). In addition to tests shown here, others are given for railroad companies in which preferred stocks are sometimes preceded by bonds. Of two tests made of industrial preferreds not preceded by any bonds, the test in which the list was selected on the basis of market activity of the preferred rather than of the common is used here. The whole study merits a careful perusal by the student of investments.

tables are reproduced above: the first comparing the market price performance and cash income of the bonds and preferred and common stocks of a group of ten corporations; and the second showing similar data for a group of ten corporations with capital structures consisting solely of preferred and common stocks.³¹ The tables indicate clearly the greater price and income variations of common stocks as compared with preferred stocks, and in turn the greater stability of bonds in these two respects over either of the two kinds of stock. The choice of both the initial and final years give the results an appearance which may influence the reader unduly. By making 1908, a year of low stock prices, the base year, the showing for the stocks is made to appear very favorable in intermediate years. Thus, if the test shown in the first table had been initiated a year later, on January 2, 1909, the \$10,000 would have purchased only half as many common shares, about two thirds as many preferred shares and about seven eighths as many bonds. In a corresponding manner, the relative income would have been higher for preferred stocks and bonds as compared with common stocks if any of the immediately succeeding years had been used as a starting point.³² The importance of this comment may be emphasized by taking January 2, 1910, as a starting point and assuming that the relative proportions among prices in the several years and between price and income in each case are continued as shown in the first table.

MODIFIED RESULTS FOR PREFERRED STOCKS CONSTANTLY
PRECEDED BY BONDS, USING 1910 AS THE
BEGINNING YEAR

Year	MARKET VALUE			DIVIDENDS		Interest on Bonds
	Common	Preferred	Bonds	Common	Preferred	
1910 . . .	\$10,000.00	\$10,000.00	\$10,000.00	\$139.81	\$399.97	\$517.97
1915 . . .	4,066.81	6,409.96	8,901.28	176.75	387.88	476.26
1920 . . .	15,180.67	7,797.43	8,835.73	549.49	598.15	407.63
1925 . . .	12,050.69	6,712.73	9,015.07	524.32	413.69	503.77
1930 . . .	19,902.50	7,509.58	9,442.45	609.53	474.26	524.91
1932 . . .	3,960.42	2,737.28	6,814.80	.....	.....	.....
Total Income: 1910-1931, Inclusive				\$9,920.87	\$11,450.07	\$10,870.77

³¹ *Ibid.*, pp. 15, 24.

³² For the study as a whole, it may be argued that a balance has been achieved by both beginning and ending in depression years. This bias with respect to the base year is most strikingly evinced in the conclusions of some studies in which the low values of common stocks in 1932 and 1933 are treated as unimportant because they were higher than the prices of twenty-five or thirty years before, ignoring their relation to the prices of years immediately prior.

The result of the change in the base year to 1910 is to raise the relative price paid for the common stock so that the income from the dividend income on \$10,000 for the period 1910 to 1931 is lower than for either preferred stocks or bonds. The income figures, while incomplete, also indicate that the 1910 investor in common stocks, as compared with the recipients of fixed incomes during the early years, would have fared poorly. The greater depreciation of the common stocks between 1910 and 1915, and 1930 and 1932, is also more apparent.

In order to avoid the bias which the use of any base year is almost certain to introduce for any but the most skillful reader, the year-by-year comparative experience with respect to income and appreciation is presented in the following tables for both preferred stocks constantly preceded by bonds and those preceded by no funded debt:

COMPARATIVE INVESTMENT EXPERIENCE OF COMMON AND
PREFERRED STOCKS AND BONDS OF TEN LARGE
CORPORATIONS

(Percentages Based on Market Value at Beginning of Each Year)

Year	CASH YIELDS			CASH AND APPRECIATION		
	Common	Preferred	Bonds	Common	Preferred	Bonds
1908.....	4.5%	5.5%	6.1%	108.7%	53.5%	20.5%
1909.....	2.1	4.2	5.1	33.5	17.6	8.0
1910.....	1.4	4.0	5.2	-29.3	-12.1	3.1
1911.....	1.5	4.8	5.0	-18.6	- 6.8	1.5
1912.....	1.3	5.7	5.1	3.4	9.2	5.6
1913.....	1.8	11.7	5.2	-23.8	- .5	.9
1914.....	2.5	6.6	5.3	- .9	.7	3.3
1915.....	4.4	6.1	5.4	124.5	27.6	9.4
1916.....	5.3	16.6	5.2	42.7	19.8	6.5
1917.....	6.9	10.1	5.1	-19.0	- 3.7	- 1.2
1918.....	9.2	8.0	5.6	9.1	11.0	6.6
1919.....	6.8	9.0	5.5	76.7	18.1	5.1
1920.....	3.6	7.7	4.6	-44.9	-12.3	- 0.2
1921.....	3.6	7.1	6.2	3.1	8.9	15.8
1922.....	1.7	5.5	5.6	15.7	7.5	8.6
1923.....	3.2	7.1	5.5	.1	3.8	4.1
1924.....	5.6	6.8	5.7	45.7	13.9	8.4
1925.....	4.4	6.2	5.6	29.4	9.9	7.2
1926.....	4.2	5.9	5.7	2.6	9.1	9.6
1927.....	4.9	6.5	5.4	34.2	18.8	8.3
1928.....	3.9	5.3	5.2	40.8	4.3	2.0
1929.....	3.3	4.9	5.6	-21.4	- 1.1	5.3
1930.....	3.1	6.3	5.6	-42.5	-20.3	.6
1931.....	5.5	6.1	5.8	-57.9	-44.2	-18.2

COMPARATIVE INVESTMENT EXPERIENCE OF COMMON
AND PREFERRED STOCKS OF TEN CORPORATIONS
WITHOUT FUNDED DEBT

(Percentages Based on Market Value at Beginning of Each Year)

Year	DIVIDEND YIELDS		DIVIDENDS AND APPRECIATION	
	Common	Preferred	Common	Preferred
1908.....	2.6%	8.9%	72.7%	41.4%
1909.....	2.2	6.8	22.6	13.2
1910.....	1.5	6.5	-33.0	- 7.6
1911.....	2.1	7.0	5.9	9.5
1912.....	2.1	6.8	33.5	12.2
1913.....	1.6	5.7	- 2.6	.6
1914.....	2.5	5.6	-10.6	1.5
1915.....	1.9	5.4	151.0	31.1
1916.....	1.9	4.8	- 8.5	12.4
1917.....	4.2	7.1	16.8	9.8
1918.....	3.2	9.1	53.8	23.7
1919.....	5.1	7.8	73.9	14.2
1920.....	4.6	7.3	-31.4	- 6.2
1921.....	3.3	7.0	-20.2	- 6.3
1922.....	1.7	3.8	10.6	11.6
1923.....	1.8	3.5	-16.5	- 8.9
1924.....	2.4	4.1	48.8	28.7
1925.....	4.5	7.7	18.8	21.0
1926.....	5.2	8.0	10.1	8.1
1927.....	5.1	7.8	27.8	13.8
1928.....	5.0	5.5	20.5	3.9
1929.....	3.8	5.0	-14.1	- 4.8
1930.....	3.6	5.5	-54.0	- 5.9
1931.....	4.4	6.2	-50.5	-28.3

These particular samples of Rodkey, like those of Jackson, have the advantage of being issues of the same companies, whereas random samples might result in a comparison of the preferred stocks of one industry with the common stocks of another. They are open to the objection of selection on the basis of market activity without regard to investment quality (in order to avoid the possible opposite bias of influencing results by some less mechanical basis of choice). As a result the common stocks were not necessarily dividend payers—that is, of investment character—and even the preferreds showed marked fluctuations in disbursements. Probably no method of selection could satisfy everyone, since each investor is interested not in preferred or common stocks in the abstract but in a particular class or quality. He is likely to feel much as a man about to

marry might feel towards general statistics on the women of the country or on divorce probabilities.

Income characteristics of common stock. The characteristic of chief importance, with which most of the studies cited have been concerned, is that of income or return. The total return in many of the studies has been considered as including both dividends and appreciation. In investment work it is often necessary to consider them separately. If accumulation of property is the sole objective, appreciation is as useful as a dividend, but where investments are employed primarily to provide an income, the holder will differentiate sharply between the two forms of return. In the first place, most investors hesitate to use appreciation as spendable income partly because of the feeling that such gains represent "capital" rather than "income," and partly because of the accounting precept which considers no appreciation a profit unless it is "realized" by a sale. In the second place, appreciation is so frequently a fleeting factor that it makes an unsatisfactory basis for spending, which is the common reason for seeking an income.

Separate generalizations are therefore desirable for each of the two income factors. With regard to dividend yields of common stocks, it may be said that they are much more variable than in the case of yields of preferred stocks and bonds in two respects: (1) the dividends fluctuate more from year to year because any changes in the residual income first affect the common stockholder; and (2) yields at any given time vary more widely among common stocks than among fixed income securities, partly because of the greater variations in risk and partly because corporations differ greatly in the percentage of net profit which they distribute. Buyers lay more emphasis on the earnings of the common stock than upon the dividend distribution, important though the latter is. Consequently a stock which distributes little or nothing is unattractive in an investment program calling for a maximum of current income, even though it may be desirable on other counts. As a class, common stocks probably offer a cash income that is no higher and probably somewhat lower on the average in relation to market price than the similar return on fixed income securities. Common stocks are of chief interest in those investment programs where current income can be sacrificed to some extent for future appreciation and income, and where fluctuations in year-to-year income will not cause undue hardship. The sample of preferred and common

stock dividend records during the unusually severe business decline following 1929, given in the preceding chapter, illustrates, to a limited extent, how different types of companies fared. Only large companies which paid dividends on their common stock in 1929 were included.

Appreciation influences. Besides the fluctuations that grow out of the conditions peculiar to the individual corporation, four general factors, sometimes interdependent, make for appreciation or depreciation. More sensible than any broad indorsement or condemnation of common stocks is the recommendation that investment policy be shaped by a consideration of whether these factors are favorable to appreciation for a given corporation at a given time. Obviously this point of view admits that speculation is present, but in view of the recognition of the purchasing power risk that is present in even choice bonds, it is not a valid reason for rejecting common stock commitments.

The four general factors making for appreciation or depreciation of common stocks are: (1) the growth factor, arising from the reinvestment of earnings; (2) the influence of the so-called business cycle upon business profits; (3) changes in the rate of capitalization of earnings; and (4) movements in the general level of commodity prices.

Growth through reinvested earnings. The growth of the common stockholders' investment might be compared with interest accrued on a bank deposit, which accumulates to the credit of the owner and is reinvested rather than spent. If the analogy ended here, common stocks would enjoy no special advantage. Any special merit must lie rather in the ability of the corporation to reinvest the retained profits at a rate of return in excess of the amount which the investor could make with the same funds. Many leading American corporations during normal times have shown an ability to reinvest earnings at a very handsome rate of return. In such cases the stockholder is able to enjoy appreciation growing out of "compound interest" at a high rate. Thereinvestment opportunities are of different kinds, and may arise from a market expansion due to: (1) population growth; (2) a rising standard of living; (3) the satisfaction of new wants; or (4) the satisfaction of old wants through more efficient methods; or they may lie in the retirement of senior obligations of the corporation.³³

³³ Diminishing growth or even stability of population is not inconsistent with continuing growth of capital equipment. Studies by Carl Snyder seem to indicate little change in the rate of growth of production during the eighty years up

A consideration of the growth and rate of profit possibilities of an industry and the particular corporations in it are a more accurate foundation on which to base hopes of appreciation than faith in general growth.

This growth factor suggests why some investors favor low-yield instead of high-yield common stocks. Those corporations with the greatest opportunities for profitable reinvestment would tend to disburse the smallest dividends, and the market appraisal would also tend to be highest for those common stocks that held the greatest promise of future enhancement.

This situation is adequately illustrated by the tables on pages 266 and 267. In the first one, headed "High Yield Group," are shown the results of an initial investment of \$1,000 in each of twenty common stocks with a high current yield, made in the year 1913 and carried through the year 1928. The second table, headed "Low Yield Group," gives the results of a similar investment in stocks with a low initial yield.

The difference between the two results is rather surprising. In the first case, increases in subsequent dividends raised the original yield of 6.7 per cent to 12.7 per cent, while the appreciation in the market value of the stock between the first and the last year was only \$1,653 per stock, or a total of \$33,060. In the second group, the original current yield was raised from 3.8 per cent to 25.5 per cent, while there was an appreciation of \$6,800 in the principal value of the holdings of the average stock, or a total of \$136,000.

Cyclical price movements. The second factor mentioned as a major appreciation influence was the cyclical movement of stock prices, brought about by alterations of business prosperity and depression over a period of years. Far more significant than the lesser price variations that occur from week to week, these major movements produce both depreciation and appreciation. The largest possibilities of loss of principal arise from this factor. As to the propriety and wisdom of attempting to profit from these movements in connection with an investment program, more will be said in Chapter 30. While appreciation from this direction is difficult to achieve, it offers one of the largest potential sources of gain. Two difficulties that may interfere with its collection by the majority of individual investors may

to 1930. "Overproduction and Business Cycles," *Proceedings of the Academy of Political Science*, June, 1931, Vol. XIV, pp. 333-358. For later change, see his *Capitalism the Creator* (New York: The Macmillan Co., 1940).

be mentioned here: first, savings available for investment are most plentiful in times of prosperity, and the need for realizing on one's investment is most likely to be urgent during depression; and secondly, the weight of popular sentiment makes profit-taking difficult at times when business conditions are good and stock prices inflated, just as it makes buying difficult when conditions are most unfavorable and stocks are at a bargain.

Changes in rates of capitalization. The third factor affecting common stock appreciation is the rate at which earnings and dividends are capitalized, or the ratio between return and market value. This influence is closely related to the business cycle through interest rates, the latter fluctuating with the stage of the cycle. Since common stocks and bonds are alternative forms of investment for many investors, when conditions produce low bond yields, the tendency is strong for stock yields to decline also, and vice versa.³⁴ This relationship is not exact but is a tendency operative over the period of the business cycle. The yield of common stocks may also be affected by a change in the attitude towards their relative risk. A change of this sort occurred between 1925 and 1928, with the result that one of the staunchest advocates of common stock investments was moved to give warning in the latter year:

... These Dow-Jones industrial stocks which averaged 11.90 per cent earnings to selling price throughout the last quarter century are now in a year of unusual prosperity preceded by seven years of expanding credit, selling on an earnings basis of only about 5.4 per cent. During the last period of general prosperity and expanded credit the ratios of earnings to selling price of these stocks were: 1917, 28.5 per cent; 1918, 33.1 per cent; 1919, 22.5 per cent; and 1920, 15.0 per cent. Never before, except in a period of severe depression, has the earnings ratio ever approached the present basis of 5.40 per cent.³⁵

Commodity prices and common stocks. Because rising commodity prices tend to raise the value of physical property and make it easier to earn at least "nominal" profits on sales of inventory, they are generally regarded as favorable to common stock appreciation. Whether these gains are "real" gains in value or merely "nominal" will depend upon whether or not the

³⁴ See Figure 26, p. 827, and the discussion in Chapter 30.

³⁵ Rose, Dwight C., *Investment Management*, Vol. II, p. 154. Quoted from an address made Dec. 27, 1928, before the American Statistical Association. The use of the years from 1917 to 1919 as a basis for comparison is probably unfortunate in that profits in those years were the result of war conditions and were probably regarded by the stock market as temporary and abnormally high.

gains are more than sufficient to balance the depreciation in the purchasing power of money that a rising price level brings. Able management, "trading on equity," or other conditions may favor a high rate of appreciation for a given common stock during a period of rising prices. Only weak or speculative bonds and preferred stocks will receive even small benefits from inflation. Industrial stocks are consequently the most favored form of "hedge" against rising prices. The public service corporations may or may not perform in the same manner, depending upon whether or not they are helped by an expanded volume of business, resulting from the stimulation of rising prices, more than they are harmed by a rising level of operating costs pressing against selling prices that are tardily adjusted to new conditions by the regulatory commissions. With extreme currency depreciation of the type that destroyed the value of some European currencies after the World War I, even the more favorably situated industrial common stocks may prove an inadequate protection to purchasing power, although they probably represent the best protection available, short of an export of capital to another country not so affected.

✓ **Summary of common stock characteristics.** From the discussion and materials presented in this chapter, the chief characteristics which determine investment fitness should be apparent. Both cash income and market price are more variable for common stocks than for either bonds or preferred stocks. These characteristics should bar their purchase with funds that are to be used to support fixed dollar liabilities of financial institutions, or that are desired by individuals as liquid funds to meet emergencies. If this rule were followed by financial institutions, it would almost completely eliminate common stock for banks and life insurance companies, both of which have relatively small surpluses over dollar liabilities. Fire and casualty insurance companies with sizable net worths would be permitted substantial common stock commitments.

Because of the greater uncertainty with respect to the fortunes of the individual corporation, diversification is much more essential in the case of common stocks than of high-grade bonds. The need for diversification, for a liquid emergency fund, and for greater skill in the selection of common stocks than is necessary for bonds—all these factors suggest that common stocks are less suitable for the small than for the large investor. With diversification a more certain result is likely, although the fact that dif-

ferent statistical studies show such extremely variant results should be a warning that no reliable prediction can be made that "average" results will be obtained from other samples of stocks at other times. No "investment experience" table can possibly have the usefulness for predicting future results that the mortality tables have for the life insurance business. Attention should always be given to cyclical conditions and probable trends of the commodity price level. The selection of suitable stocks will always involve skillful care if the most satisfactory results are to be obtained.

The two most powerful arguments for the inclusion of common stocks when conditions justify their recommendation on other grounds are: (1) the possibility of a higher return when the stocks are purchased under favorable conditions and held for a substantial period; and (2) the hedge they provide against a rising price level. Wherever the investment fund is created to provide an income for living purposes, the purchasing power of money is highly important. Under such circumstances common stocks provide a desirable supplement to fixed income securities. During periods of rising prices they should at least mitigate the burden of a rising cost of living; when prices are falling and dividends are lowered, the decreased dollar income will be compensated for by the lowered cost of living. Until the ideal of a currency with stable purchasing power has been achieved, even trust funds should be arranged with reasonable restrictions to permit some investments that will at least partially protect beneficiaries against inflation. Possibly such a step would require more activity and vigilance than certain institutional trustees have been accustomed to, but the logic of such a policy is clear.

Part III

Investments, Financial Analysis

Financial Analysis—General

Permanency of investor's relation with corporation. Since the investor's relations with the corporation are more or less permanent, each investment should be closely examined before it is acquired. The contractual features present in a given security are important and deserve very careful study, yet the ultimate investment value of a security depends on other factors as well. Of what use are the most stringent promises of a corporation to maintain a certain ratio of current assets to current liabilities, to provide for annual sinking funds, to pay interest or principal, or to carry out any of the other promises found in typical bond or preferred stock contracts, if the corporation is unable to earn enough to pay its operating expenses? On the other hand, the simple, unsecured promise of another corporation which is in the hands of competent and honest management, and which has healthy and expanding earnings, may involve a minimum of investment risk.

It may seem at first that no very intricate problem is involved in the appraisal of the exact financial condition of a corporation at a given time, but that this may be done by a cursory inspection of its current balance sheets and income accounts. Such might be the case if one were interested only in conditions at the moment. This, however, is not the situation generally confronting the man who contemplates the purchase of a corporation's securities. Except in those relatively few instances where short-term notes are purchased, the investor, whether he buys bonds, preferred stocks, or common stocks, trusts his funds to the enterprise for a substantial period of time. In a great majority of

cases he does this without retaining an effective voice in the subsequent management of the corporation's affairs, for only in unusual cases does the investor, by virtue of the size of his interest, acquire a dominating influence in determining corporate policies.

The purchaser of bonds or notes may look forward to an ultimate repayment of principal when the obligation becomes due, although the maturity of bonds is frequently so remote that it has no practical significance. The purchaser of preferred or common stocks, on the other hand, can terminate his relations with the enterprise only by selling his holdings therein. The preferred stockholder, it is true, may receive his principal back, where the corporation exercises a call or redemption privilege, and both preferred and common holders may receive their principal from the corporation as a result of liquidation. So far as the investor is concerned, however, there is no certainty as to when the call privilege will be exercised, while the liquidation of corporations is an unusual event and may result in complete loss of principal rather than in a return thereof.

This more or less permanent relationship into which investors enter with the users of their funds makes it imperative for them to inquire not only as to the present financial status of the borrowing corporation, but as to its past record and future prospects as well. This situation exists whether they contemplate the purchase of first mortgage bonds, preferred stocks, or common stocks. However, the stockholders of a corporation do have a somewhat more vital stake in the success of the enterprise than do the bondholders. The bondholders, and, in fact, the preferred stockholders, are reasonably content if charges and dividends are earned by a sufficient margin. Beyond this point their interest ceases. The common stockholders, however, usually require that the corporation expand and that earnings increase, for it is in this way that their investment will prove most profitable.

In other words, quite apart from a consideration of the particular type of stock or bond purchased, the manner in which it is secured, its priorities over the other obligations of the corporation, and the various restrictions and benefits found in the accompanying contract, investors are also interested in those factors bearing on the financial stability of the issuing corporation, its position in the industry, its prospects for growth, the particular risks inherent in the industry, the previous record of the management in control, and the financial record and existing condition of the company. These are all matters of vital concern

to the investor and should be carefully analyzed in respect to every commitment. Corporate investments have been referred to here, but the need for an accurate financial analysis applies as well to the purchase of government, state, and municipal securities.

Methods of analysis for different types of enterprises. In the development of this phase of the problem, it is convenient to set up a classification of corporations according to the nature of the business in which they are engaged. For, with certain exceptions, the methods of analysis vary widely according to the nature of the enterprise. It is rather obvious that many of the tests that are adapted to an analysis of the securities of cotton mills will prove worthless in a study of railroad securities. Similarly a set of tests will have to be worked out for municipal bonds different from that which would be used in connection with motor stocks. A classification of this sort is also helpful in that it focuses attention in the first instance on those broad, underlying influences that are related to entire industries. It is all right to make a careful analysis of the securities of a particular traction company, for example, and even to determine that they rank high in contrast to the securities of other traction companies; but this analysis does not answer the question: "Is it advisable at present to purchase any traction securities?" The same might be said of the cotton textile industry, of the woolen and worsted industry, or in fact, of any industry. It is vitally important that before he buys its securities the investor acquaint himself in a general way with the history, the status, and the prospects of the industry in which the corporation is engaged.

Importance of management. While it is true that special consideration will have to be given to the proper methods of analyzing different kinds of businesses, there are, nevertheless, certain observations so general in their application that they may be said to apply to all private corporations. These are considered at some length in the present chapter. One of the most important and least tangible of all the factors contributing to the success of an enterprise is its management. What special genius inspired an unknown and unassuming mechanic by the name of Henry Ford to organize a small automobile company in 1903 so successfully that an initial capital of \$25,000 was made to attain a value of over \$1,000,000,000 in less than twenty-five years, to say nothing of the other millions of dollars that

were paid to the original investors in the form of dividends during this period? American industrial and financial history is replete with similar figures. Recall briefly what Vanderbilt did for the New York Central Railroad; James J. Hill, for the roads of the Northwest; and Harriman, for the great Western roads. In the steel industry, the name of Andrew Carnegie stands out. In many fields, prominent corporate names serve to remind one of genius in invention, production, trade, and finance.

Spectacular success is often attained by the dominating influence of one man; but in ordinary practice the investor is perhaps more interested in the existence of a solid, self-perpetuating, and proved management with a past record of honest and efficient performance. Companies such as the General Electric, International Harvester, and the American Telephone & Telegraph Company are typical examples of well-managed enterprises with enviable records of success and fair treatment of security holders. This list could easily be extended to considerable length. On the other hand, a long list could easily be made to include companies that have been wrecked by poor management. The New York, New Haven & Hartford Railroad, for example, suffered for over a decade from the costly mistakes of the Mellen regime, which ended as far back as 1913, although changed management went a long way during the 1920's toward restoring the road's position.

It is, of course, difficult to formulate precise rules for the investor to follow in studying the management of corporations. To a considerable extent the results of management are shown in the financial reports of the company. Eventually, in all cases, the nature of the management becomes apparent; but it is entirely possible, in certain enterprises, for poor management to be concealed for years, so far as the current reports of the company are concerned. This is particularly true of those companies that are engaged in financial businesses, such as banks, mortgage companies, insurance companies, investment trusts, and the like. (In these enterprises, management is the prime factor in determining the success or the failure of the company, yet the character of the management of such companies is often not recorded in current operating results at all.)

To emphasize this point, it may be helpful for us to consider a commercial bank. It will be recalled that one of the essential functions of a bank is the lending of money or credit to its cus-

tomers. A substantial portion of its funds is employed in this way, although banks also invest in securities. The profits of a bank will depend in part on its ability to extend loans and discounts, for the larger this item, the greater the interest or discount received. Its earnings will also depend in part on the profitableness of its investments. There are many other sources of income, to be sure, but these two items are important ones. The significant point in this connection is that, under proper management, the loans and discounts of the bank will be carefully selected. Credit will be extended only to those concerns and individuals whose financial ability to pay according to the terms of their agreements is unquestioned. Investments will be similarly chosen. Under poor management undesirable loans will be made and low-grade securities purchased. Yet this situation may not be indicated by the balance sheets of the bank for a considerable length of time, because loans are often carried at their face value until, for a definite reason, they have to be written down. Much the same situation applies to the investments of the bank. Under poor management, therefore, it is conceivable that current earnings may be shown in excess of their actual amount because proper adjustments have not been made to offset the eventual losses that are bound to occur where proper care is not exercised.

A somewhat similar situation may occur with respect to mortgage companies. The principal business of such concerns is the loaning of money on real estate mortgages and the pledging of these loans or mortgages as collateral against which bonds are issued.

A typical balance sheet for such a company would be as follows:

BALANCE SHEET OF HOME LOAN COMPANY: DECEMBER 31, 1940

<i>Assets</i>		<i>Liabilities</i>	
Mortgages, Notes, and Loans.....	\$5,650,000	Capital Stock.....	\$ 500,000
U. S. Government and Other Securities.....	435,000	Bonds.....	5,000,000
Accrued Interest.....	51,000	Accrued Interest.....	30,000
Overdue Interest.....	25,000	Misc. Accounts Payable....	26,000
Cash.....	150,000	Notes Payable.....	436,000
Real Estate.....	432,000	Surplus.....	751,000
	<u>\$6,743,000</u>		<u>\$6,743,000</u>

It is evident that this company makes the greater part of its profit by charging for its loans a higher rate of interest than is

required to pay for the use of the money it borrows. On the other hand, the ultimate value of the company's securities, stocks as well as bonds, will depend on the character of its mortgage loans. If a low grade of loan is taken, the company can charge higher rates and additional bonuses, thus increasing its earnings. On the other hand, the character of its principal assets is lower, and eventually the situation may become serious if large losses have to be taken on its investments. While this situation exists, however, there may be no evidence to warn the purchaser of the company's securities. For this reason, the average investor in such a company must rely to a large extent on the character and ability of those who manage its affairs.

It is not necessary to repeat our discussion in respect to finance and loan companies and some investment trusts whose operations are conducted essentially along the same lines, for a similar situation exists.¹ There is an opportunity for those in charge of affairs to cover up errors for long periods by refusing to write off credit or investment losses. Nor is there any way by which the current financial data may be used to disclose this state of affairs.

The extent to which managerial ability is immediately reflected in the financial reports of a company will vary according to the nature of the enterprise. Regardless of the information here disclosed, however, it is often desirable to pursue an entirely independent inquiry as to the record and character of a concern's management. The record of its directors and officers in other capacities or in other enterprises is valuable information, where such information is obtainable. In other cases, inquiry may be made through banks or other firms with which the concern under consideration does business. On the other hand, where securities are sold through investment banking houses, much depends on the character of the originating house. The reputation and standing of the investment banker in such cases is, indeed, important. In fact, when a banking house brings out an issue, it may be assumed that it is thoroughly familiar with the ability and the character of those who are to manage the business, and is willing to stake its reputation on their success. In the case of subsidiary corporations whose underlying securities are being studied, it may be assumed that the management of the operating company is no better than that of the parent company, for in such cases control of these underlying companies is

¹ For a more detailed discussion of the securities of financial institutions see Chapters 20 and 21.

usually absolute, and the policies of the holding company are stamped on the operations of all its subsidiaries.

Equities and business risk. Another aspect of analysis to be considered is general in its nature and universal in its application. The entire question of the financial structure of corporations, of the relationship that exists between the various corporate "equities" in respect to profits and assets, and of the manner in which these equities are affected by business risk is referred to here. The reason for developing this subject at the present stage of the discussion is twofold. In the first place, the topic is of paramount interest to all investors in corporate securities; furthermore, it is sufficiently universal in its application to warrant general treatment rather than specific consideration in connection with each of the various classes of enterprises that are later to be studied.

The term "equities" will be used with a somewhat special meaning in subsequent pages of this book. It will be used to designate the ownership claim against those assets and earnings of a corporation which attach to a specific security. For example, assume that a corporation has outstanding \$100,000 in common stock and \$100,000 in 6 per cent first mortgage bonds, and surplus is carried at \$50,000. What is the equity represented by these two classes of securities? The bonds obviously carry a first claim against the fixed assets of the company, but this claim is limited to \$100,000. The equity represented by the common stock, on the other hand, has a book value of \$150,000. If, now, the two equities are compared, it is found that there is first a definite claim for \$100,000, secured by \$250,000 in book assets. The equity represented by the common stock is preceded by this definite claim of \$100,000, and amounts in all to \$150,000 in terms of book assets.

"Trading on the equity," defined. We sometimes say that the common stockholder "trades on his equity" when he borrows, as he has done in the present case.² By this we mean that he takes a greater risk than the creditor takes, but reserves the right to receive all profits over and above those that are necessary to pay charges on the borrowed money. It will be seen that in the case just cited the stockholder has promised the bondholder, or creditor, a specific and definite return on his equity. At the same time the stockholder provides a sort of safety cushion,

² Credit for this phrase belongs to W. H. Lyon. See Lyon, W. H., *Capitalization* (Boston: Houghton Mifflin Co., 1912), Chapter II.

ion, or buffer, for the bondholder by having made his own investment in the business. This condition becomes obvious when it is recalled that the bondholder will not lose any principal until assets have shrunk to the point where the common stockholder's equity has been completely wiped out. The preceding example may be used again for illustrative purposes. So long as earnings, after operating expenses have been deducted, are equal to \$6,000, the bondholders are assured of their income. Likewise, so long as the assets have a market value of at least \$100,000, only 40 per cent of their book value, the principal of the bonds is secure. The amounts over and above these figures are not a matter of concern to the bondholder, except in so far as large earnings and assets add further security to his investment. It may be concluded that, other things being equal, the larger the equities following any given issue of bonds, the better the security behind the bonds. On the other hand, the larger the bond issue in proportion to the amount of subsequent equities, the greater the risk attached, not only to the bonds, but also to the junior securities that follow the bonds.

Profits accruing from trading on the equity. While the risk is greater in the latter case for both junior and senior securities, the opportunity for profits on the common stock is correspondingly increased. Therefore, it is a question of policy as to just how far the stockholders of a corporation may proceed with safety in borrowing money or trading on their equity in an effort to enhance profits. We shall devote some attention to this problem in the present chapter, since it is one of the basic factors to be considered in the financial analysis of corporations. It involves, in other words, the whole question of financial structure.

In the development of this topic it will be advisable first to show more clearly, in a simple illustration, the opportunities for profit and the corresponding enhancement of risk that result from an extension of borrowing operations. Assume that the owners of a corporation are convinced that capital employed in the business can earn at the rate of 10 per cent per annum, and that a reasonable amount of capital can be obtained by issuing 6 per cent first mortgage bonds. If the stockholders avail themselves of this opportunity to borrow the capital necessary for expansion purposes at 6 per cent, in preference to having additional common stock issued, it is apparent that they can increase their own return thereby. This may be adequately demonstrated

by reducing the preceding assumptions to figures, as is done in the two following examples:

<i>Example I</i>		<i>Example II</i>	
Present Capital.....	\$1,000,000	Present Capital.....	\$1,000,000
New Capital Secured by Issue of \$1,000,000 New Stock.....	1,000,000	New Capital Secured by Issue of \$1,000,000 of 6% Bonds.....	1,000,000
Total Capital.....	<u>\$2,000,000</u>	Total Capital.....	<u>\$2,000,000</u>
10% on Capital Invested...	\$ 200,000	10% on Capital Invested...	\$ 200,000
Rate of Return on Stock...	10%	Less 6% on Bonds.....	60,000
		Available for Stock.....	\$ 140,000
		Rate of Return on Stock...	14%

In Example I, the owners of the business secured the funds necessary for expansion entirely by means of new common stock. It is true that total net profits were doubled, yet the number of shares among which such profits had to be divided was likewise doubled, so that the "per share" earnings remained the same. In Example II, additional capital was secured by issuing 6 per cent bonds. Although the interest on these bonds had to be paid before anything could be paid on the common stock, the total return required for the use of this capital was but 6 per cent. So long as such additional capital was capable of producing a total return of 10 per cent, the additional 4 per cent was available for the same number of shares of common as was originally outstanding, thus raising the return thereon to 14 per cent. The bondholder in such cases agrees to receive a smaller but a more certain return, and for this reason he purchases a security based on a definite contract to pay a stated rate of interest.

Increase of risks by trading on the equity. In order to show the inherent risks involved in this operation, the analysis may be carried one step further. Assume that the directors, encouraged by the results of borrowing the first \$1,000,000, authorize a further issue of \$4,000,000, 8 per cent debenture bonds. The set-up would then be as shown in Example III (page 282).

The essential point to consider, when borrowing operations are extended in this manner, is the relative certainty that earnings can be maintained at, or above, the assumed rate. For instance, a drop in earnings from 10 to 5 per cent on invested capital becomes a serious matter in the third example, as it would reduce earnings available for charges from \$600,000 to \$300,000,

while the charges remain at \$380,000 regardless of earnings. In other words, the corporation, in this case, is actually faced with a deficit of \$80,000. In the second example, however, where borrowings were relatively small, a drop to 5 per cent in the rate of earnings on invested capital would still leave \$100,000 available for charges of \$60,000. As a result, there will be a reduction in the rate of earnings on common stock from 14 per cent to 4 per cent, while in the first example, the same decrease in earning power would merely cause a corresponding drop in the rate of earnings on stock, since there was no borrowing.

It could be shown that an increase in the rate of earnings on invested capital from, say, 10 to 12 per cent would have a much

Example III

Capital Stock	\$1,000,000
6% First Mortgage Bonds	1,000,000
8% Debenture Bonds	4,000,000
Total Capital	\$6,000,000
10% on Capital Invested	\$ 600,000
Interest on 6% Bonds	60,000
Interest on 8% Bonds	320,000
Available for Stock	\$ 220,000
Rate of Return on Stock	22%

more favorable effect on the common stock earnings in Example III than in Example II or in Example I. So long as earnings on borrowed capital exceed the rate of interest paid thereon, borrowing is profitable for the common stockholder.

Effect of business risk on capital structures. (Business risk may be defined for present purposes as the extent to which the gross revenues, operating ratios, and net earnings of a corporation fluctuate from year to year.) These three factors are closely related and must be considered in analyzing business risk.

"Gross revenues" is the term customarily applied to the gross amount which the corporation receives each year from the sale of the products it manufactures or the services it renders. It includes only revenues from its normal business and not outside income, such as dividends or interest received on investments owned, or rentals from property leased to other concerns.³

"Operating expenses" consist of such items as wages, materials used in manufacturing, depreciation, cost of heat, light, and

³ See Chapters 13 and 14 for a full discussion of the corporate income account.

power, repairs, local taxes, and all expenses which are a necessary incident of the regular operations. These items must be paid for even before interest on the company's funded debt is met. The amount left after such charges, which may be designated as "net income available for charges" or "total income," is thus seen to be a function of gross revenues and operating expenses. This relation may be illustrated by the following very simple income account:⁴

ILLUSTRATIVE INCOME ACCOUNT

Gross Revenues	\$1,000,000
Operating Expenses	800,000
<hr/>	
Net Available for Charges	\$ 200,000

Here the operating ratio—that is, the ratio of operating expenses to gross revenues or sales—is 80 per cent. If "gross" were to increase to \$1,500,000 and operating expenses were to increase proportionately, "net" would increase to \$300,000. Or, if operating expenses were to increase to \$900,000 without any corresponding decrease or increase in gross revenues, net would be reduced to \$100,000.

On the other hand, assume that gross revenues decline to \$600,000 on account of bad business. Is it probable that operating expenses can be so adjusted that they will decline proportionately; that is, can operating expenses be reduced to \$480,000 and the operating ratio remain at 80 per cent? This is doubtful, for, in the case of a normal concern, a part of its operating expenses are more or less "constant" or "fixed." Superintendents' salaries, heating costs, and some items of depreciation cannot be proportionately reduced when gross revenues fall off. Therefore, a decline in gross frequently means an increase in the operating ratio for many concerns. If gross were to fall to \$600,000, it is probable that operating expenses could be decreased to a point no lower than \$550,000, in which case the operating ratio of the company would jump to 92 per cent. The extent to which this tendency obtains, however, will vary with different corporations, depending on the nature of the business and the amount of fixed capital employed therein. In any

⁴In practice, the income account is more complicated, chiefly because of nonoperating and unusual gains and losses. Income from outside sources, Federal taxes, depreciation, and expenses not connected with the operations of the business are treated in various ways. The analysis of income accounts will subsequently be considered in detail, at which time certain typical set-ups will be examined.

event the result of this situation is that the net earnings of normal concerns decline much more rapidly than do gross revenues, and that operating ratios tend to increase during periods of depression. Furthermore, in competitive industries, a price war may seriously reduce gross revenues, yet the physical volume of business handled may not decline and may even increase. Under such conditions, it is usually impossible substantially to reduce operating ratios; in fact, they may even increase unless a much more efficient operating program is adopted. In such industries, therefore, a decline in gross, particularly if caused by a lowering of prices owing to severe competition, will usually be accompanied by a rapid rise in operating ratios. This situation exists today (1941) in the bituminous coal industry and is largely responsible for the serious financial condition of many of our larger coal companies.

From the preceding discussion it is apparent that concerns with widely fluctuating gross revenues—that is, concerns whose sales fluctuate widely from year to year—will generally have a widely fluctuating net income available for distribution to the various equities found in the capital structure. Furthermore, those concerns whose operating expenses are the least flexible, or the least capable of being reduced when sales fall off, are in the worst position. It also follows that those concerns with the highest operating ratios during periods of normal operations are likely to be the first to show operating losses when sales slump. A concern whose operating ratio is normally 90 per cent requires 90 cents out of every dollar of sales to meet operating costs, leaving only 10 cents for all other charges and profits. A concern whose operating ratio is normally 80 per cent has a wider margin of safety and can suffer a proportionately heavier slump in sales, or rise in operating costs, before reaching the danger point, other factors being equal.

When we discussed trading on the equity, we stressed the advantages and the risks of borrowing capital. The risks, of course, are greatly magnified if earnings are unstable. Instability in earnings is caused by fluctuating gross revenues and fluctuating or high operating ratios.

It is apparent that if no business risk were present—that is, if earnings could be predicted with absolute accuracy and did not fluctuate from year to year—borrowing operations could be expanded indefinitely. On the other hand, where earnings are highly erratic and cannot be predicted with any accuracy,

the existence of the fixed charges that accompany borrowing operations creates a real danger. Accordingly, the general conclusion may be drawn that, logically, bonds may make up a large portion of total capitalization in those industries and enterprises with low business risk, but must be used more sparingly in industries and enterprises with high risk.

Business risk in typical industries: public utilities. Business risk as previously defined is decidedly lower among certain of the so-called public utility companies than among concerns classified as industrials. This statement is particularly true of electric light and power, water, gas, and telephone companies. In the past the same might have been said of railroad companies. On the other hand, traction companies are somewhat less favorably situated, chiefly on account of competition offered by the growing use of automobiles.

Up to a certain degree the services of such industries must be consumed, quite irrespective of business conditions. Very little risk is caused by style changes. Competition is minimized by the very nature of the enterprise in the public utility field, where the economic law of increasing returns operates and where duplication of facilities seldom occurs. Finally, the existence of commission control over rates and services is ordinarily a stabilizing factor.

The effect of this situation is clearly illustrated by a study of the figures of the American Telephone & Telegraph Company for the years 1930 to 1939, inclusive.

AMERICAN TELEPHONE & TELEGRAPH CO. AND SUBSIDIARIES

GROSS REVENUES, NET INCOME AVAILABLE FOR CHARGES, AND
OPERATING RATIOS: 1930-1939

Year	Gross Revenues (Millions of Dollars)	Income Available for Charges (Millions of Dollars)	Oper. Ratio	CHANGES OVER PRECEDING YEAR		
				Gross Revenues	Net for Charges	Oper. Ratio
1930.....	1,103.9	283.5	78.6	+3.1	-2.6	+1.7
1931.....	1,075.8	273.7	78.0	-2.5	-3.5	-0.6
1932.....	956.4	209.6	79.9	-11.1	-23.4	+1.9
1933.....	872.4	168.9	80.4	-8.8	-19.4	+0.6
1934.....	884.5	182.9	79.8	+1.4	+8.3	-0.7
1935.....	919.1	195.2	80.1	+3.9	+6.7	+0.4
1936.....	994.9	246.2	77.9	+8.2	+26.1	-2.7
1937.....	1,051.4	234.5	80.3	+5.7	-4.8	+3.1
1938.....	1,052.7	204.3	81.9	+0.1	-12.9	+2.0
1939.....	1,107.2	238.6	80.4	+5.2	+16.8	-1.8

The fluctuations in gross revenues are relatively small compared with those in almost any other form of business. For the years immediately prior to 1930, the changes chiefly arose from increasing population and increasing per capita utilization of the telephone. The annual increment was remarkably regular, and the resultant trend may be one of the reasons for the resistance of the business to the depression influences shown in the years 1930 to 1933. The unusual stability of the operating ratio is also worth noting. The more marked decrease in net income in 1932 was attributable to the unusual decline in exchange and toll revenues, especially the latter, which the company was unable to balance by a reduction in operating expenses.

NET INCOME AVAILABLE FOR FIXED CHARGES: 1930-1939

(Thousands of Dollars)

Year	<i>Consolidated Edison of N. Y.</i>	<i>Public Service of New Jersey</i>	<i>Detroit Edison</i>	<i>Southern Cal. Edison</i>
1930.....	84,616	45,655	17,102	23,051
1931.....	85,654	46,341	17,383	21,808
1932.....	79,016	43,242	12,808	20,890
1933.....	71,555	41,702	12,835	18,011
1934.....	58,312	38,847	12,104	18,096
1935.....	56,632	38,205	16,320	19,534
1936.....	57,853	37,448	16,943	20,350
1937.....	53,041	35,851	15,967	19,084
1938.....	53,963	33,880	13,799	18,832
1939.....	55,918	37,156	15,659	19,450

At the end of 1939 the combined funded debt of the American Telephone & Telegraph Company and subsidiaries amounted to \$1,100,721,000, and the net worth, including a small minority interest in the stock of the subsidiary companies, was \$2,527,490,000. The funded debt thus amounted to but 33 per cent of the capital structure, or a ratio of debt to stockholders' equity of but 1 to 3.0.

In the electric light and power and gas industry, relatively low business risk is likewise found. This fact is clearly illustrated by a study of the net income of typical companies during the past ten years, although some companies have suffered much more than others from reduced volume and rate reductions.

The low business risk found in electric light and power enterprises is accompanied by a relatively high ratio of debt to ownership equity. For commercial central electric stations, the long-term debt was reported, as of December 31, 1937, at \$6,837,592,000, while capital stocks were carried at \$6,540,461,000 and sur-

plus at \$1,034,583,000, exclusive of possible surplus reserves.⁵ The resulting ratio of funded debt to net worth is 1 to 1.11; in other words, funded debt constituted 48 per cent of the combined capital structures on that date. One frequently finds companies in this field with a funded debt considerably in excess of ownership investment. The use of a high proportion of funded debt is even more marked in some of the large utility holding company systems, as compared with the operating companies just mentioned. The real reason for this situation is related to the advantages accruing to the stockholders, or owners, of the enterprise from trading on a thin equity, where business risk is relatively low and where earnings on invested capital may be expected to exceed the rate paid on borrowed capital.

Business risk in railroads. For the railroad industry of this country a relatively low business risk was also characteristic until the growth curve flattened out in the late 1920's, leaving the situation vulnerable when prolonged depression began in 1930. Transportation is vital to the nation, and the railroad element, which constitutes by far the largest sector, is strictly regulated. Formerly operating under near-monopoly conditions, it has, in recent years, been subject to increasing competition from the motor truck, the private automobile, and the bus industries. Although expenses were reduced remarkably during the years immediately succeeding 1929, so that operating ratios did not rise in the manner which might have been expected, the large and prolonged decline in the movement of heavy goods seriously jeopardized the financial position of the railroads. Two other factors which have made adjustment to changing conditions difficult have been the control of rates by the Interstate Commerce Commission and the presence of strong labor unions controlling wage scales. As a result, the business risk in the railroad field has so increased as to leave the outlook extremely uncertain.

Recent statistics of railroad operation. A study of the recent statistics of railroad operation indicates clearly the inability of a regulated industry immediately to meet changed economic conditions. The effect of rising prices from 1913 to 1920 was to reduce the earnings of our railroads and to increase operating ratios. This tendency, especially pronounced after the first World War, was accentuated by the unwillingness of the Inter-

⁵ United States Census figures as reported in *Moody's Manual of Investments: Public Utility Securities* (New York: Moody's Investors Service, 1940), p. a25.

state Commerce Commission to grant rate increases sufficient to offset rising costs. After 1920, however, a rapid reduction in operating ratios took place, owing largely to rate increases, a lowering of general prices, and economies effected by the roads after their return to private operation. After 1929 the depression reduced both gross revenues and net operating income, and subsequent recovery has been halting and unsatisfactory, as shown in the following table.⁶ In view of the severity of the decline, the ability to control expenses, as reflected in the operating ratio, was extraordinary.

GROSS OPERATING REVENUES, NET OPERATING INCOME, AND
OPERATING RATIOS FOR ALL CLASS I RAILROADS IN THE
UNITED STATES: 1921-1939

Year	Gross Oper. Revenues (Millions of Dollars)	Net Oper. Income (Millions of Dollars)	Oper. Ratio	PER CENT CHANGE OVER PREVIOUS YEAR	
				Gross Rev.	Net Income
1921.....	5,517	601	82.7%	-10.7%	3,435.3%
1922.....	5,559	760	79.4	7.0	26.3
1923.....	6,290	962	77.8	13.0	26.6
1924.....	5,921	974	76.1	-5.8	1.2
1925.....	6,123	1,121	74.1	3.4	15.0
1926.....	6,383	1,213	73.2	4.2	8.0
1927.....	6,136	1,068	74.5	-3.9	-12.0
1928.....	6,112	1,173	72.5	-0.4	9.8
1929.....	6,280	1,252	71.8	2.7	6.7
1930.....	5,281	869	74.4	-15.9	-30.6
1931.....	4,188	526	77.0	-20.7	-39.5
1932.....	3,127	326	76.9	-25.3	-38.0
1933.....	3,095	474	72.7	-1.0	45.4
1934.....	3,279	463	74.6	+5.7	-2.3
1935.....	3,451	500	75.1	+5.5	+8.0
1936.....	4,053	667	72.3	+17.4	+33.4
1937.....	4,166	590	74.9	+2.8	-11.5
1938.....	3,565	373	76.4	-14.4	-36.8
1939.....	3,995	589	73.2	+12.1	+67.9

In 1930, funded debt constituted 62.3 per cent of total outstanding net capitalization of all roads reporting to the Interstate Commerce Commission.⁷ This compares with a figure of 54.5 per cent in 1890. It is doubtful, however, whether this increase was entirely voluntary. A study of the railway problem since 1900 shows that increasing regulation, especially in respect to rates, reduced profits and made the railroad industry a less

⁶ Compiled from *Railway and Industrial Compendium*, Nov. 29, 1940, p. 2.

⁷ *Moody's Manual of Investments: Railroad Securities* (New York: Moody's Investors Service, 1934), p. a22.

attractive field for stock investment.⁸ In seeking additional capital for expansion purposes during this period, our railroads undoubtedly were forced, in many instances, to issue bonds rather than preferred or common stocks. The above percentages omit surplus, which, if included, would make funded debt and net worth about equal. In the decade 1920-1930, the railroads, in spite of their low return, made surplus additions about equal in amount to the sum of the increase in bonds and stocks outstanding.

So-called industrial companies; reasons for high business risk. One finds the widest fluctuations in earnings and the highest business risk among so-called industrial companies. It is true that there are certain types of industrial companies that enjoy relatively stable earnings, but the existence of such companies does not destroy the validity of the general observation. The reasons for this situation are not very hard to find.

Competition. In the first place, industrial companies are usually subject to severe competition, except in those relatively few instances where some form of legal monopoly, such as a patent monopoly, or control of raw material, exists. There are, in fact, several types of competition to which industrial companies are subject. First is the ordinary competition reflected in the markets where the concern sells its output. Another type of competition comes from the continual growth of new concerns equipped with the newest and most modern machinery. Such companies for a time enjoy lower costs than their competitors, with the result that older concerns, in order to escape the handicap of high costs, are often required to scrap their equipment long before its real life is spent. This kind of depreciation is called obsolescence. Finally, the competition of one commodity with another must be considered. It is a general complaint among clothing manufacturers that the automobile has diverted purchasing power, which otherwise would have been used for their products. The displacement of the bicycle and the carriage by the automobile is now a matter of history, while the substitution of artificial silk for other fabrics is so recent a phenomenon as to require but little comment.

Instability of demand and changes in styles and tastes. Other reasons why industrial earnings fluctuate widely are style changes and the constant shifting that takes place in the public's demand for goods and services. Particularly in the textile in-

⁸ See Chapters 18 and 19.

dustries are style changes of the utmost importance. Several years ago a visit of the Prince of Wales to this country stimulated the sale of blue shirtings to such an extent that the earnings of several large mills that specialize in the manufacture of shirtings were seriously affected, because they had a large stock of standard patterns that failed to move. The growing demand for combination shirts and collars during 1926 and 1927 was given as the reason for a decline in earnings of one of our large collar manufacturing concerns. In the automobile field also, one is constantly witnessing changes in designs and models that react to the advantage of some companies and to the detriment of others. In short, to maintain their position in the field, it is necessary for all companies that produce goods for the ultimate consumer to keep in constant touch with the consumers' tastes and to anticipate the latest developments.

How industrial earnings are affected by business conditions. The constant fluctuations that occur in business conditions, accompanied by rising and falling prosperity, also cause industrial earnings to vary from year to year. During periods of prosperity the purchasing power of the community is high, demand is large, and profits are high. Rising prices are likewise favorable to most manufacturing concerns. During periods of depression demand falls off, prices decline, and the earnings of many concerns are seriously reduced. Companies engaged in the manufacture of luxuries, or of articles that are not absolutely necessary, naturally will be the hardest hit during such times, while concerns that manufacture low-priced necessities may not be so seriously affected. Industrial profits as a whole, however, follow the trend of business conditions very closely.

The effect of price fluctuations on inventory values is another factor that often affects the profits of industrial companies. A rapid fall in prices, such as occurred in 1920-1921 and in 1930-1932, is very serious to a concern that carries an average inventory equal to 50 per cent of its gross sales. Not only does such a fall in price cause earnings to decrease, but it weakens the concern's liquid position and frequently necessitates temporary or permanent borrowing.

Low business risk. While so-called industrial corporations as a class are subject to high business risks, there are some exceptions. Companies that enjoy a monopoly in their field, either because they control patent rights or sources of raw materials, occupy a strategic position and may enjoy a relatively low busi-

ness risk. Companies like Eastman Kodak, General Electric, du Pont, and Union Carbide and Carbon control many patents, which they add to by research. They also enjoy the protection of valuable trade-marks. The Aluminum Company of America was the sole producer of virgin aluminum in this country, until Reynolds Metals Company entered the field in 1941. By virtue of such monopoly these companies enjoy a relatively low business risk.

Low-priced necessities. Industrials manufacturing low-priced commodities that are necessities likewise enjoy a stable demand for their products. Where such a situation obtains, the unit of expenditure for the article is small, the proportion of the consumer's total income used in the purchase of such articles is small, and sales, therefore, remain fairly constant irrespective of business conditions. American Can, American Tobacco, Diamond Match, and Procter and Gamble are companies that belong to this class, as shown in the following table:

NET INCOME AVAILABLE FOR INTEREST AND DIVIDENDS
OF SELECTED INDUSTRIALS: 1930-1939

(Thousands of Dollars)

Year	<i>American Can</i>	<i>American Tobacco</i>	<i>Diamond Match</i>	<i>Procter & Gamble *</i>
1939.....	18,285	27,534	2,137	27,815
1938.....	13,645	26,474	2,074	19,102
1937.....	17,928	27,075	2,112	27,399
1936.....	17,227	20,994	2,056	16,842
1935.....	17,310	25,143	2,276	19,124
1934.....	19,523	24,348	2,427	14,562
1933.....	15,357	17,689	2,358	11,282
1932.....	10,957	44,190	2,037	9,607
1931.....	15,530	46,734	2,055	23,130
1930.....	22,884	43,345	2,427	22,934

* Years ended June 30.

Chain store companies. In the merchandising group the better-managed chain store companies have likewise been relatively free from business risk during the past decade. These companies sell standardized articles, on which the unit of expenditure is small. They operate over a wide territory and hence avoid the dangers of local depression. Many of the articles they sell are necessities that are sold at a substantially lower price than similar articles in unit stores. For this reason, the larger chain store companies have until recently shown a comparatively steady growth and a smooth upward trend of

earnings quite irrespective of business conditions. With rapid turnover of merchandise, the risk of inventory losses is reduced. The table below, showing net earnings of the Great Atlantic and Pacific Tea Company of America, the F. W. Woolworth Company, and the S. S. Kresge Company for the years 1930-1939, inclusive, show the characteristics of such companies in a decade of unusually trying conditions. In the earlier years industrial activity was declining, and commodity prices fell. When allowance for these influences is made, the degree of stability is favorable, although the Great A. & P. shows the effect of adverse chain store taxes and increased competition.

NET EARNINGS OF SELECTED CHAIN STORE
COMPANIES: 1930-1939

(Thousands of Dollars)

Year	Great A. & P. Co.*	F. W. Woolworth Co.	S. S. Kresge Co.
1939.....	15,834	29,310	10,639
1938.....	9,119	28,585	9,202
1937.....	17,085	33,387	10,984
1936.....	16,593	32,925	11,465
1935.....	16,709	31,247	11,036
1934.....	20,478	32,142	10,959
1933.....	22,733	28,691	9,875
1932.....	29,793	22,101	7,045
1931.....	30,743	41,031†	10,904
1930.....	26,220	34,736	11,918

* Years ended Feb. 28.

† Includes 9,977 profit on sale of securities.

Whatever may be said regarding exceptions of this nature, it is a well-recognized principle among investors that industrial companies as a class are subject to high business risk. This risk explains the low average ratio of bonded debt to ownership equity among industrial companies as a group, as compared with either public utilities or railroads. In a compilation for the year 1930, which included data for 555 industrials, with aggregate resources of \$37,464,000,000, the total fund debt amounted to \$4,204,000,000, and the stock equity amounted to \$29,265,000,000. The ratio here was approximately 1 to 7. Similar data for a group of 26 railroads, with combined assets of \$17,461,000,000 showed a funded debt of \$7,075,000,000 and capital and surplus of \$9,230,000,000. The ratio here was about 1 to 1.3.⁹ These

⁹ *Standard Corporation Records*, Special Earnings Section, November 11, 1931, pp. 4 and 5.

figures are significant even though a wide variety of businesses are classified under the heading "industrials." and they bear out the generally accepted principle that borrowing operations should be guided by the extent to which business risk exists.

Summary. In the present chapter certain factors of general importance have been considered. Management is one of these factors. The capital structure of the corporation is also of primary concern, for here is reflected the financial relationship existing between different groups of investors. By way of suggestion, the risk elements present in the three major groups of privately owned companies were analyzed briefly. The investor, however, should be in a position to carry this investigation much further and to discriminate within these groups. It should be a cardinal rule, in purchasing securities, to insist that the capital structure of the corporation be in keeping with the inherent risks.

Financial Analysis—Industrials

Industrial securities. Among investors the term "industrial securities" is used in a very broad sense. Quite illogically it is often applied to the securities of practically all private enterprises except those that may be definitely classified as public utilities, railroads, banks, real estate, insurance, or investment trusts. In a way, it is unfortunate that the term should be used in so general a fashion for, after all, there is little in common among such diverse enterprises as copper mining, oil producing, automobile manufacturing, and chain store merchandising. The three chief groups of "industrials" are: (1) the extractive or mining; (2) the manufacturing; and (3) the merchandising industries. Some integrated units merge all three types of activity, as in the petroleum group, where certain corporations own and operate the oil wells, refine the product, and sell the consumer the finished commodities.

In developing methods of analysis that are applicable to railroad securities, one finds his problem simplified by the fact that he is dealing with corporations whose fundamental operations are to a certain extent similar, in spite of the different geographic, economic, and climatic conditions in various parts of the country. The same may be said of electric light and power companies, traction companies, banks, insurance companies, and so on. In determining methods of analysis that are adaptable to industrial securities, one finds a somewhat different situation existing. Although it is possible to single out certain characteristics common to many different lines of activity, it is nevertheless desirable to work out for each industry certain refinements that take

into account factors which are generally applicable to the industry under consideration.

For example, in the analysis of textile securities, many statistics can be reduced to a "per spindle" basis; in the consideration of sugar securities, the "per bag" basis may serve as a common denominator; while in the analysis of the securities of oil companies, as much depends on giving proper consideration to the reserves of the company as to current operating data.

With this in mind a plan of investigation has been developed

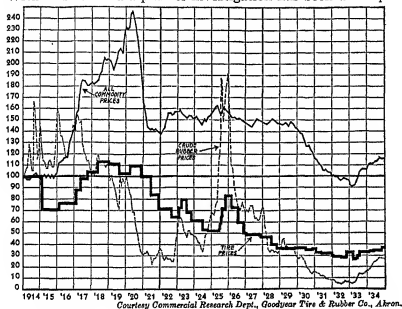


Figure 11—Indexes of Crude Rubber, Tire, and All Commodity Prices (1914 = 100).

that provides first for a *general survey* of the industry in which the enterprise itself is engaged. Now that some of the pertinent factors to be studied in determining the investment outlook of the entire industry have been indicated, the general methods by which the *concern itself* may be analyzed and its position in the industry determined will be discussed. These methods include, first, a consideration of a series of financial ratios that apply generally to industrial concerns and, secondly, specific lines of inquiry that may be adapted to particular industries.

General survey of industry: sources of raw material. One of the first matters to be considered in a general survey relates

to the sources of raw materials that the concern uses, the markets in which these are purchased, and the probable variations in raw material prices over a period of years. Where a concern is integrated—that is, where the same corporation produces both the raw materials and the finished products, as does the United States Steel Corporation—this aspect of business risk is minimized. Quite the opposite situation exists with respect to our large tire companies, however, for here the bulk of raw material (crude rubber) comes from the Far East and is raised in British and Dutch territory. One of the serious elements of risk in the tire industry arises from the wide fluctuations that occur in crude rubber prices from year to year. Some idea of the range over which rubber prices varied during the period 1914 to 1934 may be obtained from Figure 11 shown on the preceding page.

That the actual monthly fluctuations in rubber prices were very violent during a substantial part of the period covered is indicated by the curve of average monthly prices. The following table gives the high and the low range for each year from 1920 on:

**ANNUAL RANGE OF RUBBER PRICES, BASED ON MONTHLY
AVERAGES OF SPOT RUBBER AT NEW YORK***

(In Cents per Pound)

<i>Year</i>	<i>High</i>	<i>Low</i>	<i>Year</i>	<i>High</i>	<i>Low</i>
1920.....	55.0	17.5	1930.....	15.8	8.2
1921.....	20.0	12.8	1931.....	8.3	4.6
1922....	27.5	14.2	1932....	4.4	3.0
1923....	35.5	26.0	1933....	8.8	3.0
1924.....	38.1	18.9	1934....	15.5	9.2
1925....	104.8	35.6	1935.....	13.2	11.5
1926.....	79.6	38.0	1936.....	20.2	14.4
1927.....	41.0	33.8	1937.....	24.3	14.7
1928.....	40.0	17.9	1938.....	17.0	11.6
1929....	24.6	16.1	1939....	23.2	16.0

* Standard Statistics Company, statistical bulletins.

From 1922 to 1928, the so-called Stevenson plan, under which the production and export of rubber in the British colonies were rigidly controlled, was operative in the British East Indies. This part of the world, chiefly British and Dutch, produces the great bulk of the world's supply of crude rubber, and 98 per cent of the United States imports come from here. The restrictions imposed by the Stevenson plan were designed primarily to give the British producer a fair price for his rubber. The immediate

result was a sharp rise in rubber to a high of 104.8 cents per pound (in 1925). However, the plan produced no stability in rubber prices, for, by 1928, when the system was discontinued, rubber had fallen to a high price of 40 cents per pound and a low of 17.9 cents per pound. Subsequently an agreement was formulated by British, Dutch, and French interests to pursue a rubber restriction program designed to improve prices to some extent.¹ The current situation (1941) is uncertain, owing to the possibility that war may interrupt the supply of this important raw material. An expansion of domestic artificial rubber production is taking place, partly financed with Government advances to private industry.

In order to obtain an idea of the hazards arising from such rapid and erratic fluctuations in raw material prices, it is necessary first to study the amount of inventories that a typical tire company is required to carry. The B. F. Goodrich Company, for instance, during the year 1930, produced gross sales of \$155,256,245. Its inventories at the end of the year were carried at \$37,064,174, or 24 per cent of the sales figure. In the years 1920 and 1921, the inventories of this company were approximately 50 per cent of gross sales. Since inventory losses would tend to be related to the average amount carried in stock rather than the year-end inventory, the following table shows sales, the average of the initial and final inventories for the year, and the percentage of the latter figure to the former:

INVENTORIES AND SALES—B. F. GOODRICH CO.: 1927-1939

Year	Average Inventory* (in \$100,000)	Sales (in \$100,000)	Inventory per Dollar of Sales (in Dollars)
1927.....	30.5	151.7	.20
1928.....	34.6	148.8	.23
1929.....	41.5	164.5	.25
1930.....	41.7	155.3	.27
1931.....	31.3	115.2	.27
1932.....	21.3	74.5	.29
1933.....	21.3	79.3	.27
1934.....	30.0	103.9	.29
1935.....	36.4	118.7	.31
1936.....	39.4	141.1	.28
1937.....	42.0	150.0	.28
1938.....	40.0	115.0	.35
1939.....	38.1	141.5	.27

* Average of inventory at beginning and end of period.

¹ Case, W. W., "New Rubber Restriction Program Less Subversive than Stevenson Plan," *Annalist*, May 4, 1934, p. 702.

With net profits ordinarily not exceeding 10 per cent of sales in this industry, the importance of a 25 per cent inventory write-off upon net profits can be appreciated. The amount of loss is the result of two factors: rate of price decline and slowness of inventory turnover. It is true that opportunities for large profits are created during periods of rising prices, yet it is a far better policy for manufacturing corporations to avoid, if possible, all chance of loss or gain from fluctuations in commodity prices and to seek, so far as possible, only a normal manufacturing profit. When, however, price movements are as violent as those portrayed here, ability to speculate in inventory may be fully as important as manufacturing efficiency in determining profits. In a number of lines in which inventory prices are very unstable, such as rubber, sugar, leather, and meat packing, profits are correspondingly unstable.

Labor conditions and business risks. The question of labor conditions likewise presents an element of risk in industrial companies. The bituminous coal industry as a whole has suffered from overdevelopment and a stagnant market, but the fate of particular companies has often hinged upon the labor situation. In some of the Midwestern states, like Illinois, where labor was unionized, wage scales were maintained at a level that made competition with non-union fields in the East impossible save for the richest and most easily operated mines. The result was a shift in the industry and the failure of certain units.² Similar conditions have marked the shift of numerous textile mills from New England to the South. The encouragement to unionization under Federal legislation which started in the 1930's has made labor relations of deepest importance to the investor. Study of labor conditions is essential, especially where, because of elastic demand for the product, the possibility of passing increased labor costs on to the consumer is very doubtful.

Markets. A study should also be made of the market for the products of the concern under consideration. The location and the extent of the market and the nature of the demand are important. Is the product a necessity or a luxury? How will sales hold up during periods of depression? What competition must be met? Are sales of the so-called repeat sort, or is a customer once sold out of the market? The salvation of the

²The simultaneous decline of the Chicago and Eastern Illinois Railroad Co. and the enrichment of the Chesapeake & Ohio Railway Co. are written in their coal traffic statistics for the decade of the 1920's.

Gillette Safety Razor Company, when its original basic patents expired, was its market for over 60,000,000 blades annually. Another factor of importance is diversity of outlets. Concerns which sell through many retail outlets and have a consumer demand for their products are in a better position than are concerns that sell under jobbers' brands to a few large outlets. Another question is that of potential market growth. Is there room for future expansion or has the industry reached the acme of its growth? There is little or no opportunity today for expansion in the cotton or woolen textile industries. The automobile industry appears to have passed through its period of maximum domestic expansion and is concerned chiefly with satisfying replacement demand. Some industries that are still young and have possibilities of future growth are the electric equipment, air conditioning, new types of housing, and chemical industries.

Organization within the industry. The organization found within the industry is also important. In the cotton textile field many small independent mills are competing for business. There are also two distinct producing areas—New England and the South. In the former locality many mills are characterized by old-fashioned management and obsolete equipment. Costs of production are also high, yet these mills have a low original investment cost and hence low carrying charges. The development on a rapid scale of new mills in the South has so increased the number of spindles in operation and output that there is insufficient business to keep all plants operating at a profitable capacity. The failure of high-cost producing mills cannot act as an immediate remedy for the situation, for such mills, unless liquidated and dismantled, still operate so long as they can meet "out of pocket" expenses. Under these conditions, they actually become more dangerous competitors, at least so far as trade stabilization is concerned, than do new mills with normally low production costs. In contrast, certain other industries have the bulk of their business concentrated in the hands of a limited number of large units, which, although actively competitive, do not indulge in periodic cut-throat competition. In some industries monopoly conditions arising from such factors as patents, advantageous location, or superior management, create favorable investment return.

The tariff and investments. The possible influence of the tariff upon a given investment is another factor to be studied. Because the tariff is a debatable matter and is subject to major

changes by political action, it deserves attention in considering protected industries. Tariffs levied upon certain imported articles make it difficult or impossible for them to enter the United States market at a cost that will permit their competition with similar products of domestic manufacture. Domestic sugar production is a prime example of an industry that can survive only when given the artificial protection of a tariff wall. Cotton and woolen goods also regard tariff protection as necessary.

Economists have generally opposed tariffs as fostering domestic high cost industries and diverting the national productive resources from those lines which they could carry on most efficiently. Their strictures have largely fallen on deaf ears in this country, partly because of the desire to build up "infant" industries (which apparently never grow up), and partly because of the sentimental desire to favor "home industry." In recent years, for military reasons, the tariff, the world over, has received added impetus in the drive for autarchy, or national self-sufficiency.

Usually an industry that is efficient enough to stand on its own feet is in a stronger investment position than one dependent upon tariff protection. Nevertheless, once a tariff law has been passed in any field, capital and labor acquire a vested interest in its continuance, which has generally prevented repeal or even reduction. The increased interest in America's foreign trade and in the consumers' welfare, however, may bring changes for which the investor should be alert.

Analysis of individual concerns: importance of financial statements. After the investor has given sufficient thought to the foregoing general factors which bear on the investment problem, he should turn his attention to the particular enterprise. In studying the risks of this business he must center his interest on two essential points: the position of the company in the industry and the conditions within the business itself. He should make a study of the financial reports that present the actual condition of the company from time to time, and that summarize its operating results during the intervening periods.

The two most important statements available to the investor for purposes of financial analysis are the balance sheets and the income accounts of a corporation. These records are so important and are so generally used by investors in appraising the financial condition of businesses and the financial risks attached to their securities, that a thorough understanding of them is

necessary for the student of investments. For the benefit of those who are not familiar with accounting methods, a brief explanation of the nature of these two sets of accounts follows.

Balance sheet defined. The balance sheet may be said to show a cross section of the financial condition of a concern (or individual) at a given instant of time. It is a statement of assets, liabilities, and proprietorship interest, and may be interpreted as an equation: $\text{Assets} = \text{Liabilities} + \text{Proprietorship Interest}$. On the asset, or debit, side of the balance sheet is a list of all the assets of the corporation; on the liability, or credit, side are indicated the various equities in these assets. That which does not belong to creditors belongs to the owners of the business. Thus we find two distinct types of accounts on the liability side of the balance sheet: those representing amounts owed to outsiders and those representing amounts owed to the owners, so to speak.

We have a somewhat different situation, however, when the corporation suffers losses sufficient to reduce or to impair the original capital; that is, when assets are less than liabilities plus original capital, a deficit occurs. This deficit appears as a negative item on the liability side but becomes a positive item if transferred to the asset side of the equation, that is, $\text{Assets} = \text{Liabilities} + \text{Capital (proprietorship)} - \text{Deficit (proprietorship)}$; or $\text{Assets} + \text{Deficit} = \text{Capital} + \text{Liabilities}$. A deficit is not a real asset, however; it is really an offset to capital.

Analysis of proprietorship accounts. These very elementary concepts will now be illustrated by hypothetical balance sheets. Let us first assume that the financial affairs of corporation A stood as follows at the close of business, December 31, 1939:

<i>Assets</i>		<i>Liabilities</i>	
Land and Buildings.....	\$1,000,000	Capital Stock.....	\$1,000,000
Machinery and Equipment..	500,000	Bonds, 6%.....	500,000
Inventories.....	600,000	Accounts Payable.....	400,000
Accounts Receivable.....	600,000	Notes Payable... ..	200,000
Cash	300,000	Profit and Loss Surplus..	900,000
	<hr/>		<hr/>
	\$3,000,000		\$3,000,000

If this company had been liquidated on December 31, and if the assets had all brought their book values, the \$3,000,000 of assets would have been distributed as follows: \$500,000 to the bondholders, \$600,000 to noteholders and creditors, and \$1,900,000 to the stockholders.

Suppose, on the other hand, that the company suffered severe losses during 1939 and that the balance sheet showed the follow-

ing situation on December 31, instead of the more prosperous one previously suggested:

<i>Assets</i>		<i>Liabilities</i>	
Land and Buildings	\$1,000,000	Capital Stock.....	\$1,000,000
Machinery and Equipment	500,000	Bonds, 6%	500,000
Inventories.....	300,000	Accounts Payable.....	900,000
Accounts Receivable.....	200,000	Notes Payable.....	500,000
Cash	100,000		
Profit and Loss Deficit.....	800,000		
	<hr/>		<hr/>
	\$2,900,000		\$2,900,000

If assets were to be liquidated at their book values, the total receipts would not be \$2,900,000, but \$2,100,000. This amount would be distributed as follows: \$500,000 to the bondholders, \$900,000 to the creditors, \$500,000 to the noteholders, and the remaining \$200,000 to the stockholders. The profit and loss deficit here is thus an offset to capital and is not an asset in the true sense of the word. That is to say, the real book value of the capital account is \$200,000, and not \$1,000,000, as it appears at first glance. The asset "profit and loss deficit," which has been designated an "offset" account, must first be deducted. Its appearance on the asset side as a positive item, or on the liability side as a negative item, is necessary to make the books balance.

It is possible, of course, that the deficit might be in excess of the amount of capital stock outstanding. In cases where this occurs the corporation is said to be "insolvent." That is, the corporation has not enough assets to meet its actual obligations to outside creditors. A situation such as this may occur before it is shown on the books of the company. Reverting to the balance sheet shown above, one observes that land and buildings are carried at \$1,000,000. Assume now that this item is overvalued on the books of the company and is really worth only \$700,000. A proper revaluation of these assets would increase the profit and loss deficit to \$1,100,000, and the corporation would become insolvent. A similar loss might be incurred with the same results with any of the other asset items.

Lack of standardization. For illustrative purposes a very simple balance sheet was constructed. In practice the balance sheet may be much more complicated and thus present a real problem of analysis. Furthermore, there is an utter lack of standardization in industrial accounting, which makes the analyst's task at times very difficult. Take, for example, the

variety of ways in which depreciation may be handled. A few concerns do not charge any depreciation, but charge off some or all fixed assets as they are purchased. Other concerns charge income for a fixed annual amount, determined by the value of the assets and the rate at which they are expected to depreciate, and write down these assets each year by an amount equal to the estimated depreciation. When this is done the assets may be carried at their net depreciated figure in the balance sheet or at their original value, with the depreciation reserve appearing directly underneath the original value as a deduction. This latter arrangement may be illustrated by reference to the balance sheet appearing on page 302. Let us assume that the machinery and equipment account, which is carried at \$500,000, has a value before depreciation of \$600,000. This item might be carried at \$500,000, as is done, with no reference to depreciation, or it might be carried as follows:

Machinery and Equipment.....	\$600,000
Less Depreciation	100,000
	<hr/>
	\$500,000

Another method for the handling of accumulated depreciation is to set it up as a liability under the heading "Reserve for Depreciation." Had this been done in the preceding case, "Machinery and Equipment" would have been carried at \$600,000 on the asset side of the balance sheet, and, among the liabilities, an item, "Reserve for Depreciation on Machinery and Equipment," amounting to \$100,000, would have appeared. The entries then would have been as follows:

<i>Assets</i>		<i>Liabilities</i>
Machinery and Equipment... \$600,000		Reserve for Depreciation on Machinery and Equipment. \$100,000

It is important for the investor to differentiate between so-called offset reserves of this nature and liability and proprietorship reserves. Offset, or valuation, reserves appear, as indicated above, either on the side of the balance sheet opposite to that on which the assets whose valuation they reduce appear, or as direct deductions from the asset amounts. Examples of such offset items are reserves for depreciation and obsolescence, for bad and doubtful accounts, and for the reduction of inventory value. The simplest way in which to dispose of such accounts in financial statement analysis is to reconstruct the balance sheet and eliminate them entirely by deducting the amount indicated

from the corresponding asset on the other side of the balance sheet.

When the corporation sets up special reserves that cannot be definitely interpreted, a more difficult problem is created. Suppose that a reserve is set up for "pensions and retirements." Is this a true proprietorship item or not? The answer depends, of course, on the extent to which the amounts charged thereto represent real liabilities. If the reserve is properly set up and not exaggerated, the assumption is that sooner or later an equal amount must be paid out as losses. The same may be said of other special "contingent" reserves set up against possible inventory losses, or fire losses, where the corporation operates its own insurance funds, and so forth. On the other hand, corporations sometimes use such accounts to hide earnings. Some analysts would hold that until the actual happening of the contingency for which these reserves were created, such items are really surplus.

"Reserves for additions and betterments," or similar reserves which are clearly neither for valuation of an asset nor a debt to outsiders, are examples of proprietorship, or surplus, reserves. They are surplus under a title which indicates that they cannot be used as a basis for dividends. Sometimes a vague item, such as "Special reserves," appears which may or may not represent a proprietorship account. Where corporations are involved in lawsuits or patent disputes, they sometimes set up reserves to cover anticipated losses. The conservative practice is to question such accounts unless they are explained in the reports of the company.

The presence of a relatively large item representing "goodwill" or other intangibles among the assets requires special treatment by the analyst. Pending further discussion, it is recommended that such items be eliminated entirely from the balance sheet and that an equal amount be deducted from surplus. This treatment should not be taken to imply that goodwill never has a value, for, as will be seen, it may have a real value. The purpose in eliminating intangibles from the balance sheet is purely to facilitate the statistical comparisons that are to be suggested.

Deferred and prepaid items also require interpretation. In the customary operation of corporate affairs, it becomes necessary from time to time to pay in advance for certain services. Frequently, insurance is paid for several years in advance.

Work may be undertaken in the opening of new markets and the expenses incurred carried as an asset until profits materialize. In other cases, extraordinary losses may be set up as a deferred, or suspense, account and gradually charged against earnings. This latter type of item may be treated as an intangible asset; whereas the former type, consisting of prepaid expenses, is usually relatively small and may be treated as a current asset, although in the conventional balance sheet it is generally shown as a special division of the assets.

Income account defined. The income account, as contrasted with the balance sheet, shows the operating results of a corporation over a period of time, usually a year. It explains in more or less detail the income and expenses which have caused the changes in the proprietorship, or surplus, account in the period elapsing between two consecutive balance sheets. Practice varies in regard to the form in which the income account is set up, but the following example illustrates in a general way the customary method of presenting this information for manufacturing concerns. The same procedure will be followed in the explanation of the income account as in that of the balance sheet. First a simple form of income account, covering the operation of our assumed corporation for the year ending December 31, 1940, will be considered. (See page 307 for balance sheet.)

INCOME ACCOUNT: YEAR ENDED DECEMBER 31, 1940

Net Sales.....	\$1,000,000
Cost of Goods Sold and Operating Expenses	800,000
	<hr/>
Net Operating Income....	\$200,000
Income from Other Sources.....	20,000
	<hr/>
Total Income.....	\$220,000
Fixed Charges.....	30,000
Income Taxes.....	20,000
	<hr/>
Net Profit.....	\$170,000
Dividends on Stock.....	100,000
	<hr/>
Net Profit Left in Business	\$70,000

It is also true that there is a lack of standardization among accountants as to the way in which the income account is set up. The simple example suggested here illustrates the main groupings necessary to a proper analysis of the financial affairs of the corporation. The first item that appears is "Net Sales." This may be labeled "Total Revenues," "Sales Billed," or "Sales,"

but should include only the gross amounts received from the normal operations of the business, after returns and allowances have been deducted. "Operating Expenses" includes expenditures other than those for goods or their production, such as selling and administrative, but not any distribution to investors or taxes based on profits. Among the more common operating expenses are salesmen's salaries and commissions; advertising; administrative salaries; heat and light; repairs or maintenance of buildings and equipment; depreciation, and taxes other than income and profits taxes. The amount left after the payment of such expenses may be called the "Net Operating Income." To this is generally added any income not derived from the main operations of the business. Such nonoperating income may include interest received from outside investments, rentals on leased properties, and the like. If there are other expenses incurred that are not in the nature of fixed charges or operating expenses, they may be deducted at this point. Among such charges may be included the cost of maintaining leased property or other expenses incident to the ownership of nonoperating property. In any event "Total Income," or "Gross Income," should represent the amount available for bond interest, other fixed charges, and income taxes. The amount left after these deductions are made is available for dividends on stocks and for surplus.

Again, it should be recalled that practice differs among corporations as to the form in which the income account is published. Some corporations include all taxes in operating expenses; others do not charge depreciation as an operating expense but insert it at a later point as a charge against surplus; still other corporations do not show sales at all. Complete lack of standardization again makes the analyst's task more difficult, for he is frequently required to use his ingenuity in interpreting various items. In the work of comparing one corporation's accounts with those of another, it is often necessary to rearrange the various corporate accounts in some uniform manner before any comparison is possible. The arrangement suggested in the simple statements of Corporation A may be considered as the suitable order for analytical purposes.

Relation of income account to balance sheet. All income and all expenses *which have an effect, one way or another, on the proprietorship equity of the company* are summarized in the income account. In the preceding example the profit and loss

balance of \$70,000 represents the net change made in the surplus account of the corporation between the two balance sheet periods. This fact may be illustrated by reference to the first of the previous balance sheets assumed for this corporation, appearing on page 301, in which profit and loss surplus was carried at \$900,000 for the year ended December 31, 1939. It is known from the income account just shown that the 1940 balance sheet will have to show a \$70,000 increase in proprietorship equity, which should appear as an increase in the profit and loss surplus account.³ It is in fact conceivable that the balance sheet of Corporation A, on December 31, 1940, might appear as follows:

<i>Assets</i>		<i>Liabilities</i>	
Land and Buildings	\$1,025,000	Capital Stock	\$1,000,000
Machinery and Equipment	525,000	Bonds	500,000
Inventories	700,000	Accounts Payable	400,000
Accounts Receivable	500,000	Notes Payable	200,000
Cash	320,000	Surplus	970,000
	<u>\$3,070,000</u>		<u>\$3,070,000</u>

In other words, one must look to the income account for an explanation of the changes that take place in surplus between two balance sheet dates. For Corporation A, if no income account had been available, but merely the balance sheets as on December 31, 1939 and 1940, respectively, and had it been known that the company paid dividends of \$100,000, net earnings for the period could have been determined by working backward. By subtracting the 1939 surplus from that for 1940, a gain of \$70,000 is shown. Adding to this, \$100,000 in dividends, one arrives at total net earnings of \$170,000. For corporations that fail to publish income accounts, but publish annual balance sheets, it is possible to estimate earnings in this way.

Analysis of United States Steel Corporation's reports: balance sheet. Now that a typical balance sheet and income account have been examined and the relationship between the two statements traced, it will prove interesting to consider a set of actual accounts as published by a going concern. For illustrative purposes, the balance sheet and the income account of the United States Steel Corporation have been chosen. The accounts of this concern have been used because they present the

³This statement assumes that no capital adjustments were made during the year, such as, for example, the writing up or down of fixed assets or the distribution of stock dividends. Such adjustments have an effect on proprietorship equity and will usually appear as "surplus changes" in a special division at the end of the income account for the period.

UNITED STATES STEEL CORPORATION
COMPARATIVE CONSOLIDATED GENERAL BALANCE SHEET: DECEMBER 31, 1939 AND 1938

Assets

CURRENT ASSETS

	Dec. 31, 1939	Dec. 31, 1938
Cash in banks and on hand.....	\$ 185,190,478	\$ 118,485,589
U. S. Government and other marketable securities, less reserves.....	20,320,237	19,060,076
(Market value 1939, \$21,376,464; 1938, \$20,439,283)		
Accounts receivable, less reserves.....	88,632,482	56,908,801
Bills receivable, less reserves.....	7,140,894	7,714,967
Inventories, less reserves.....	204,503,046	279,518,004
	575,877,137	482,378,097

INVESTMENTS

Outside real estate & mortgages & invest. in sundry securities, less reserves.....	9,594,980	12,357,555
U. S. Steel Corp. common stock owned (2766 shares in 1939 and 1938).....	111,158	111,158
Balances under employees' home-owning plans, less reserves.....	6,359,442	6,537,957
	16,065,580	19,006,670

FIXED ASSETS

Property, plant and equipment.....	2,339,203,909	2,344,316,957
Less reserves for depletion, depreciation, amortization & obsolescence.....	1,217,046,795	1,177,797,445
	1,122,157,114	1,166,519,512
	1	1

INTANGIBLE ASSETS.....

OTHER ASSETS

Inventory of sundry operating parts, supplies, etc.....	25,674,829	27,990,413
Cash resources held in bond sinking funds & other trustee accounts.....	14,058,079	683,832
Receivables not collectible within one year, less reserves.....	2,914,924	2,094,468
	42,647,832	30,738,713

DEFERRED CHARGES

Prepaid royalties.....	8,383,014	8,581,954
Discount and expense on long term debt (net).....	2,322,208	3,130,722
Other deferred charges.....	1,070,777	923,337
	11,775,999	12,636,013
	\$1,768,523,663	\$1,711,279,006

UNITED STATES STEEL CORPORATION
COMPARATIVE CONSOLIDATED GENERAL BALANCE SHEET: DECEMBER 31, 1939 AND 1938 (Continued)

FINANCIAL ANALYSIS—INDUSTRIALS

309

Liabilities

	Dec. 31, 1939	Dec. 31, 1938
CURRENT LIABILITIES		
Current accounts payable including payrolls.....	\$ 59,350,845	\$ 39,583,182
Accrued taxes.....	46,719,183	31,369,882
Accrued interest, unprinted coupons and unclaimed dividends.....	1,954,365	2,003,346
Preferred stock dividends.....	6,304,919	6,304,919
Bonds, mortgages & debentures maturing within one year.....	20,559,379	10,244,967
	<hr/> 143,888,691	<hr/> 89,506,296
LONG-TERM DEBT		
United States Steel Corporation 10-Year 3½ debentures.....	90,286,500	95,146,000
Subsidiary companies' issues.....	112,231,000	125,855,000
Bonds for payment of which cash is specially held by trustees.....	3,175,000	305,000
Real estate mortgages and purchase money obligations.....	10,806,709	12,161,373
	<hr/> 216,502,209	<hr/> 233,467,373
	3,241,244	
DEFERRED CREDITS.		

RESERVES		
Contingent, miscellaneous operating and other reserves.....	38,639,389	38,567,298
Insurance reserves.....	46,301,124	45,694,174

MINORITY INTEREST IN COMPANIES NOT WHOLLY OWNED (Book Value)	5,144,935	5,137,051
	<hr/> 360,281,100	<hr/> 360,281,100
CAPITAL STOCK AND SURPLUS:		
Preferred 7% cumulative stock—par value \$100.....	.....	.....
(Authorized 4,000,000 shares; issued 8,602,811 shares)	.....	.....
Common stock—no par—stated capital \$75 per share.....	652,743,900	652,743,900
(Authorized 15,000,000 shares; issued 8,708,252 shares)	.....	.....
Capital surplus.....	38,462,801	38,462,801
Earned surplus.....	263,319,270	247,419,013
	<hr/> \$1,311,897,071	<hr/> \$1,298,906,814
TOTAL CAPITAL STOCK AND SURPLUS	.....	.....
	<hr/> \$1,768,723,653	<hr/> \$1,711,279,006

condition of our largest industrial company. A complete presentation of the comparative balance sheet of this corporation (save for certain supporting schedules concerning Inventories, Fixed Assets and Long-term Debt) for the year 1938 and 1939 is given on pages 308 and 309. The income account for the period appears on pages 311 to 312.

While many of the items appearing in this statement are clear, it may be desirable to comment on others in the light of the requirements of the investment analyst. Possibly the first account needing comment is "Investment, U. S. Steel Corp. common stock." Although here the amount is relatively negligible, it is customary in analysis work to omit such an item from the assets and subtract it from the capital stock and surplus on the liability side, since so much stock is in the treasury and no longer outstanding. The gross amount of property, plant, and equipment is listed, followed by deduction for "reserves," or allowances for loss of value from "depletion, depreciation, amortization & obsolescence." It will be noted that this deduction represents a write-down of more than one half. Since it is customary to carry the gross figure at original cost, and since the allowances are necessarily estimates, the net valuation is not to be understood as even approximating current market value.

If that portion of the amount carried under "Cash resources held in bond sinking funds & other trustee accounts," which was available for funded debt repayment, were known, it would be deducted from that liability in order to facilitate the analysis of the balance sheet relationships. Under "Deferred Charges" will be found any bond discount when bonds have been sold for less than par, the bond account showing the par liability. Each year during the life of the bond an equal amount of this discount is charged off as part of the interest expense, and the discount account is gradually reduced.

The nature of "Current Liabilities," or items coming due within one year, and of "Long-Term Debt" is fairly evident. "Deferred Credits" represents unrendered service or undelivered goods for which the corporation has been prepaid. These, unlike the preceding debt items, are not liquidated by a cash payment and generally include a profit element; therefore, expenditure of resources will be less than the amount of liability.

Where reserves are set up to meet probable cash outlays, as for accidents to employees or to the public or for fire insurance, the items may be regarded as in the nature of liabilities, even

though no specific creditors exist. When, however, the reserves are excessive, as reserves for self-insurance often are, or when the prospective outlay does not occur, as is generally true for contingency reserves, the items are merely surplus and a part of stockholders' net worth under another name. The position of these reserves between the liabilities proper and the net worth accounts indicates their borderline nature. Unless the investor is certain of their surplus character, he is likely to omit them from the net worth total but compute the amount they would add to the common stock equity were they included.

"Minority Interest in Companies Not Wholly Owned" represents the stock (and its pro-rata share of surplus) of any subsidiary companies which is outstanding in the hands of the public. Since such stock is not an obligation of the holding corporation, and in any case is generally a small amount, it is likely to be stated as a single lump sum. Subsidiary stock held by the corporation is, of course, an intercompany bookkeeping item and so is eliminated in a consolidated balance sheet.

UNITED STATES STEEL CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENT OF INCOME AND SURPLUS

For Years Ending December 31, 1939 and 1938

	1939	1938
GROSS SALES & REVENUES:		
Gross sales, less discounts, returns and allowances...	\$801,039,242	\$560,508,303
Gross revenue of transp. common carriers	78,456,470	52,574,864
Gross revenues from miscellaneous operations.....	24,656,179	19,450,216
Total.....	904,151,897	632,533,383
COST OF GOODS SOLD & OPERATING EXPENSES OF TRANSPORTATION & MISCELLANEOUS OPERATIONS.....	667,109,644	488,393,258
Balance.....	237,042,253	144,140,125
OTHER OPERATING EXPENSES:		
General administrative and selling expenses.....	51,066,788	41,001,553
Payments under pension plan to U. S. Steel & Carnegie Pension Fund.....	8,305,519	7,743,046
Provision for bad debts.....	1,193,635	
Taxes (excl. social security & Federal income taxes)	39,224,030	34,602,915
State and Federal social security taxes.....	14,818,056	11,309,216
Idle plant expenses	1,247,227	2,440,185
Allowances for depletion, depreciation & obsolescence.....	60,659,917	48,532,841
Expenses of dismantling and rearranging facilities..	574,613	660,607
	177,089,685	146,290,363
NET OPERATING INCOME (or loss).....	59,952,668	2,150,238

OTHER INCOME:		
Dividends from outside investments.....	496,765	292,823
Interest on securities and accounts (net).....	1,096,776	1,857,539
Discount on purchases.....	1,259,505	993,387
Rents and royalties.....	1,405,310	1,525,295
Net profit (or loss) on securities.....	1,325,894	555,274
Net profit (or loss) on sale of capital assets.....	5,408	333,191
Miscellaneous (net).....	59,272	75,748
	<hr/> 63,440,550	<hr/> 3,483,019
OTHER DEDUCTIONS:		
Minority portion of profits of companies not wholly owned (net).....	32,685	8,145
	<hr/> 63,407,865	<hr/> 3,474,874
INTEREST ON BONDS AND MORTGAGES (incl. net bond discount and expense).....		
	<hr/> 9,812,931	<hr/> 8,262,328
Net income (or loss) before Federal income & profits taxes.....	54,094,934	4,787,454
PROVISIONS FOR FEDERAL INCOME AND PROFITS TAXES.....		
	<hr/> 12,975,000	<hr/> 2,930,000
Net income (or loss) applicable to capital stocks...	41,119,934	7,717,454
DIVIDENDS—U. S. STEEL CORP. PREFERRED STOCK (\$7.00 per share) ...		
	<hr/> 25,219,677	<hr/> 25,219,677
Surplus (or deficit) for the year.....	15,900,257	32,837,131
Earned surplus at close of previous year.....	247,419,013	280,356,144
	<hr/> \$263,319,270	<hr/> \$247,419,013
EARNED SURPLUS AT DECEMBER 31st PER BALANCE SHEET.....		
	<hr/> <hr/>	<hr/> <hr/>

United States Steel Corporation income account. The consolidated income account of this Corporation for the years 1938 and 1939 as reported in its Thirty-eighth Annual Report is shown directly above. The form of this statement follows the general outline discussed earlier in this chapter. The first section deals with the chief operations, and begins with sales and revenues, from which the cost of goods and other operating expenses are deducted to arrive at the net operating income. An unusual feature of this statement is the showing of transportation activities in the operating section. In this case such operations are closely integrated with steel mill activities. The combination of figures, however, makes analysis and comparison with other steel companies difficult. Among the expenses is "Allowances for depletion, depreciation, and obsolescence." This item, unlike most of the other costs and expenses, represents not a current outflow of cash but a value reduction in the fixed assets.

The net result from operations for the year 1938, a depression

year, was a deficit. The following year showed an unusually brisk upswing in volume and a substantial profit.

The next section lists non-operating items under the heading of "Other Income." Such income ordinarily is from security holdings but may be derived from any property or operation not the chief activity of the business. The net result through this point gives total income available for security holders and income taxes. The small share belonging to minority stockholders in subsidiary corporations is first subtracted; the claim of bondholders is then shown. On the balance, income taxes are levied, leaving the net figure available for preferred and common dividends.

In passing, it may be noted that the United States Steel Corporation annual report is an example of the better type of statement to stockholders, from which valuable factual and background material may be had. The 1939 report, from which these figures are taken, contains a considerable amount of material, both statistical and descriptive. Charts show the changing annual proportions of the sales dollar going to employees, the government, and the investor group over the life of the corporation, and also employee earnings and hours over the last decade. Simplified statements show graphically the balance sheet proportions and a percentage breakdown of the earnings statement. Long-term tables give useful data on finances and production. The reader would do well to familiarize himself with this type of material by writing to the company for stockholders' annual reports, where he may find background to supplement the more formal summaries supplied by the investment information services.

Use of ratios in analysis of corporate reports. It is, of course, difficult—in fact, practically impossible—for one to digest a mass of statistical or financial data without first determining certain bases of comparison or units of measurement. The mere figures that appear in the balance sheets and the income accounts of corporations contain a wealth of information, but this information cannot be utilized satisfactorily without a definite plan of attack. It is our next purpose to develop such a plan and to emphasize the more significant information that may be derived from the financial statements of corporations by the establishment of certain account ratios.

Capital structure. The first matter to be considered is "capital structure." This subject has already been discussed in a

general way and for that reason need not be studied exhaustively at this time.⁴ Complete data relative to the capital structure of a corporation may be obtained from its balance sheet. Here are set forth all bonds outstanding, all preferred stocks, common stocks, and surplus and other proprietorship reserves. The total investment of a corporation, as carried on the books of the company, is represented by the sum of all these items. Trade accounts and notes payable are not regarded as an investment. It is true that trade creditors have a temporary investment in the debtor concern, but this investment arises from the convenience of doing business on a credit basis and not from choice. Furthermore, such investment is ordinarily for a very short time and is in no way permanent, except in unusual cases. A going company, by virtue of the fact that it has on its books at all times an average amount of current liabilities, has the use of these funds; yet, for purposes of analysis, we prefer to exclude this item from both capital structure and investment.

By reference to the balance sheet of the United States Steel Corporation, December 31, 1939, it may be observed that this company had the following book investment or capital structure:

Long-term Debt.....	\$216,502,209
Minority Interest in Companies not Wholly Owned. .	5,144,985
Preferred Stock.....	360,281,100
Common Stock.....	652,743,900
Capital Surplus.....	38,462,801
Earned Surplus.....	263,319,270
Total Investment.....	\$1,536,454,215

From the preceding schedule it appears that the total book value of the investment in the United States Steel Corporation stood at \$1,536,454,215 and was made up as follows:

	<i>Per Cent</i>
Funded Debt.....	14.1
Minority Interest.....	0.3
Preferred Stock.....	23.5
Common Stock and Surplus.....	62.1
	<hr/> 100.0

Or, stated in terms of the ratio of debt to proprietorship equity, it appears that for every dollar the bondholders had invested in the enterprise the stockholders had \$6.09 invested. This represents a reasonably conservative ratio for this corporation, which

⁴ See Chapter 12.

is engaged in a basic industry and which occupies a very strategic position in the industry. A ratio of not over 1 to 3 or 1 to 4 is usually regarded as desirable among industrials if the bonds are to achieve investment standing. This standard is the equivalent of setting the maximum funded debt at from 25 per cent to 20 per cent of the capital structure. Or, if it were assumed that there were no liabilities except the bonds, it would be the same as setting a minimum total assets-to-debt ratio of from 4 to 1 to 5 to 1. Too much emphasis should not be laid on this ratio, for in industrial security analysis the tendency is to emphasize earnings and working capital position.

From the common stockholders' standpoint it is sometimes desirable to show the ratio of bonds and preferred stock outstanding to total capitalization, for the preferred stock, of course, represents a contingent charge against earnings and assets that takes precedence over the common stock. In this case, preferred stock and bonds constitute 37.6 per cent of total capitalization, while common stock and surplus make up 62.1 per cent.

In the preceding analysis, exact treatment would require that the treasury stock be deducted from the common stock and surplus. More important, "Reserves" has not been added to "Surplus," although its nature might justify that course in whole or in part.

Comparison of capital structure with market value of common stock. Another and perhaps more effective way in which to show the extent to which bonds are supported by succeeding equities is to compute the market values of these equities. If these figures are found in the case of the United States Steel Corporation, the following comparisons result:

	<i>Millions of Dollars</i>
Bonds at Par.....	216.5
Preferred and Subsidiary Stocks at Par and Book Value... ..	365.4
Common at 62 (average 1939 price).....	539.6
<hr/>	
Market Value Total Investment (bonds and preferred stock at par).....	1,121.5

When the market value of the total investment is substituted for book investment, the bonds do not appear to be quite so well supported by the following equities. Thus, while each dollar of bonded debt is protected by \$6.09 of junior equities in terms of book value, it is only protected by \$4.19 of equities at their market value. This latter basis is usually regarded as the more

significant in determining the security behind bond issues because market price reflects the commercial value of the properties as a going concern. It has the danger of emphasizing a valuation that often fluctuates erratically.

The same process may be used in comparing the security behind preferred stock issues, which would give \$1.48. Since the fortunes of the preferred stock are linked with those of the bonds, it is better practice to work out this ratio for the bonds and preferred stock combined to the market value of the common stock, which gives a figure of \$.93. Unless this "over-all" method of measuring the position of the preferred stock is used, an absurd result may be obtained of a ratio which shows the latter to be protected as well as, or better than, the bonds.

Relation of charges to income. Not only is the investor interested in the value of the assets behind bond and preferred stock issues, but he is even more interested in the extent to which a given bond or preferred stock issue is protected by earnings. Similarly, the common stockholder should know the number of times both fixed charges and preferred dividend requirements are earned. It has been suggested that an industrial bond ought to be secured by assets equal to four or five times the par amount of bonds outstanding. Similarly, it is a general rule that, on the average, the interest on industrial bonds should be covered at least three times, in order that the bond should be considered safe. Categorical statements of this kind are dangerous, for, as we have seen, the risk elements in different concerns vary widely. Where specific statements like this are made, therefore, they should be considered as general in their application and subject to special conditions as these arise in actual practice.

The factor of safety. In discussing the relation of earnings to charges, the analyst will do well to recall what was said in earlier chapters about the order of bond priorities. Where a corporation has several different issues outstanding, it is important to determine the order in which the various claims come. This information can be obtained only from an examination of the contract provisions contained in the bond indenture. As a practical matter, however, current financial services generally give sufficient information to make possible the proper arrangement. Having made such a study, the analyst is able to determine the so-called "interest coverage" for each issue.⁵ The usual meas-

⁵ Another method of measuring interest coverage, called "factor of safety," is suggested by Gerstenberg, C. W., in *Financial Organization and Management*

ure, known as "times interest earned," is obtained by dividing the amount available for all interest charges by the amount of interest upon the given issue and underlying or equally secured issues.

The following example illustrates this method and also shows how a junior mortgage bond may, during prosperous years, have a high coverage, but during poor years suffer more severely than do senior mortgage bonds. Assume the following data in regard to a corporation whose bonds we are analyzing:

DATA FOR BOND ANALYSIS

Item	Normal Year	Poor Year
A Gross Revenues.....	\$1,000,000	\$800,000
B Operating Expenses	600,000	540,000
C Income from Operations.. . . .	\$400,000	\$300,000
D Interest on First Mortgage.. . .	200,000	200,000
E	\$200,000	\$160,000
F Interest on Second Mortgage...	100,000	100,000
G	\$100,000	\$80,000
H Interest on Third Mortgage.....	50,000	50,000
I	\$50,000	\$10,000

Applying the rule of dividing the interest charges on the given issue plus the underlying issues into the total available earnings, the following "coverage" or "times interest earned" figures are obtained:

TIMES INTEREST EARNED OVER-ALL COVERAGE

	Normal Year	Poor Year
First Mortgage ($C \div D$).....	2.00	1.80
Second Mortgage ($C \div D + F$).....	1.33	1.20
Third Mortgage ($C \div D + F + H$).. . .	1.14	1.03

The times interest earned figures readily show how large a margin exists over the charges of any given issue. They also make it easier to visualize the relative decline by which that margin may be wiped out. Thus in a normal year the coverage for the first mortgage is sufficient to permit a decline of one-half in the available earnings before the margin is completely eliminated. As far as the third mortgage is concerned, however, with an over-all coverage of but 1.14 in the normal year, the

(New York: Prentice-Hall, Inc., 2d rev. ed., 1939), p. 191. The factor of safety is the ratio of the amount remaining after payment of the interest on a given issue to the amount of that interest charge.

elimination of the 14 cents margin out of each \$1.14 will wipe out the margin. The earnings for the poor year show the effect of a ten per cent decline in earnings and indicate how much more rapidly the junior issue sinks to the danger point of one times earned. A drop of 12 per cent would have eliminated all margin for the third mortgage but would have left the first mortgage with a coverage of 1.76.

These figures also illustrate why the computation of coverage for each individual issue on the basis of the balance available for it alone is unsatisfactory. Inspection of the income figures shows that if this method had been used, each of the three mortgages would have shown exactly the same coverage, 2.00 times earned. For purposes of analysis, the over-all coverage for each issue is preferable because it offers a measure indicating what variation in the net income available for all interest charges will eliminate the margin of safety for the given issue.

Preferred dividend requirements and earnings. In analyzing the position of preferred stocks in relation to earnings, we encounter the same difficulties that we found in our analysis of junior mortgage bonds. Bond interest takes precedence over preferred stock dividends. If the corporation has a relatively large issue of bonds, and a relatively small issue of preferred stock outstanding, the times earned figure indicated for the preferred stock may be entirely unreliable if computed from the balance after interest. Suppose, for instance, that the capitalization and earnings of a corporation are as follows:

<i>Capitalization</i>		<i>Charges</i>	
Common Stock.....	\$1,000,000		
Preferred Stock, 7%.....	3,000,000	\$210,000	
First Mortgage Bonds, 6%...	4,000,000	240,000	
Debenture Bonds, 7%...	5,000,000	350,000	590,000
<i>Income Account</i>		<i>Normal Year</i>	<i>Poor Year</i>
Gross Revenues..		\$5,000,000	\$4,000,000
Operating Expenses.....		4,000,000	3,200,000
Available for Charges.....		\$1,000,000	\$800,000
Interest on First Mortgage Bonds.....		240,000	240,000
		\$760,000	\$560,000
Interest on Debentures.....		350,000	350,000
Available for Dividends.....		\$410,000	\$210,000
Preferred Dividends.....		210,000	210,000
Net for Common Stock.....		\$200,000	\$ none

Apparently the preferred stock of this company has, during a normal year, a safety margin of over 95 per cent; yet a drop of 20 per cent in gross, even if we assume that the operating ratio does not change, would reduce the net income by \$200,000 and completely wipe out this factor of safety. It is customary for investment bankers, when selling preferred stock issues, to state the number of times preferred dividends are earned. In this case the banker would, it is true, be accurate in stating that in the "normal year" preferred dividends were earned 1.95 times. The interest of prospective investors, however, should lie in the ascertainment of how many times preferred dividends *plus interest requirements* are earned. In the present instance, a normal year shows such requirements to have been earned only 1.25 times, which fact marks the issue under consideration as highly speculative. From the authors' viewpoint, an industrial preferred stock should be regarded as speculative unless combined charges and dividend requirements are earned at least twice over a period of years.

Earnings, charges, and preferred dividend requirements: U. S. Steel Corporation. Before leaving the subject of earnings as security for charges, let us apply what has been said to the data presented for the United States Steel Corporation. From the consolidated income account the following figures may be drawn for analysis:

Earnings Available.....	\$63,407,865
Charges on Subsidiary Bonds.....	6,141,898†
	<hr/>
	\$57,265,967
Charges on U. S. Steel Corp. Bonds.....	3,171,033†
	<hr/>
	\$54,094,934
Federal Taxes.....	12,975,000*
	<hr/>
Available for Dividends.....	\$41,119,934
Preferred Dividends.....	25,219,677
	<hr/>
Balance.....	\$15,900,257

† Estimated—approximate.

* Federal taxes are computed on the net earnings of the corporation and are therefore a charge that follows bond interest. If there were no earnings after bond interest, there would be no profits and no taxes. For that reason, we indicate taxes as a charge following bond interest. It does, however, precede preferred dividends, in that it is computed on earnings before such dividends.

The preceding data show that the charges on the bonds of the United States Steel Corporation were earned by a satisfactory margin. The combined bond interest was earned 6.8 times in

TABLE SHOWING RELATION OF EARNINGS
TO CHARGES—U. S. STEEL CORPORATION

(Based on 1939 Data)

<i>Issue</i>	<i>Times Earned</i>
Subsidiary Bonds*	10.3
Bonds of U. S. Steel Corp.*	6.8
Preferred Dividends†	1.5—

* Before deducting Federal taxes

† Computed by dividing earnings after taxes by the sum of the bond interest and preferred stock dividends.

1939, which figure is substantially in excess of the requirements for industrials. These combined charges and preferred dividends were earned slightly under 1.5 times, and thus not only falls short of the three times coverage suggested for industrial bonds as a standard of investment quality but is less than the two times level below which it was suggested an industrial preferred stock would be rated as definitely speculative.

Earnings per share of common. Earnings "per share" of common stock are of significance to the stockholder in showing the real return on his investment. Per share earnings are ascertained by dividing "net" after preferred dividends by the number of shares of common stock outstanding. If we refer to the assumed income account for Corporation A, on page 305, we note that \$17 was earned in 1940 for each share of common stock, whereas only \$10 a share was paid as current dividends. For the United States Steel Corporation for the year 1939, we find total earnings available for common stock amounting to \$15,900,257. The number of shares of common outstanding was 8,700,486. Per share earnings for 1939 were, therefore, \$1.80.

Earnings per share versus current dividends. The emphasis to be placed by the investor on per share earnings as compared with the current dividend payments on common stock will depend on several things. Where the investor seeks an immediate current return on his commitment, he naturally will look for those issues that have a record for regular dividend disbursements. On the other hand, he may prefer to forego present income in the form of dividends and invest in companies that are using net earnings for expansion purposes.

It has already been indicated that such earnings as are not paid out in dividends add to the property of the common stockholder. In fact, the situation here is very much the same as if all income, after prior obligations, were paid out to the common stockholder and a portion reinvested by him in the business,

except that, in the former case, the investment is made by the board of directors instead of by the stockholder himself. Earnings over and above current dividends not only should be regarded as true earnings, but should also be considered as a safety factor in protecting the current dividend rate on the common stock.

Ratio of total income to total investment. To what extent the officers of a corporation will be justified in retaining earnings in the business for expansion purposes will depend on several things. Of course, dividends should never be paid in an amount sufficient to deplete necessary working capital, and likewise periods of depression may threaten future profits to an extent that may make it necessary to adopt policies of the utmost conservatism. Except for such extraordinary situations, however, the normal reason for retaining earnings in the business is that a further investment in the business can profitably be made. The measure of this profitableness is found in the ratio of *total income* to total investment.⁶ This ratio indicates the present capacity of the business to earn on its invested capital. The total investment of the United States Steel Corporation on December 31, 1938, was \$1,537,511,238, whereas on December 31, 1939, it was \$1,536,454,215.⁷ The average investment for the year was therefore \$1,536,982,726. This gives a rate of earnings on total average investment of about 3.28 per cent. Industrials as a group earned on the average less than 8 per cent on invested capital in the prosperous 1920's. An industrial corporation that consistently earns in excess of 10 per cent may be considered above rather than below average.⁸

The rate at which industrial concerns are able to earn on invested capital is subject to no law other than the economic one that abnormal profits invite competition. Consequently, there is a tendency for all profits to be reduced to the normal rate necessary to attract capital and entrepreneurial ability. But in a highly dynamic society such as ours it can hardly be said that this law has more than theoretical importance. With respect to public utilities, however, rates are so regulated as to reduce the

⁶It should be noted here that we use income available for charges, since we include funded debt in our total investment.

⁷Includes preferred and common stock outstanding, subsidiary stocks, bonded, mortgage, debenture debt, capital surplus, and earned surplus. See pp. 308 and 309 for balance sheet.

⁸For data see Nerlove, S. H., *A Decade of Corporate Incomes—1920 to 1929* (Chicago: University of Chicago Press, 1932).

return on the fair value of property employed for public uses to not more than 6 to 8 per cent. For the railroad industry, a 5.75 per cent return was set as a fair average rate under the terms of the Transportation Act of 1920, although this provision was abolished by the Emergency Act of June 16, 1933, which left the matter undetermined. Industrial concerns, on the other hand, are unregulated and consequently a wide range of earning power is found. A rate of 10 per cent or over may be regarded as satisfactory, although higher rates as well as lower ones are common. In fact, the average of some companies over long periods is barely enough to meet fixed charges, while others consistently earn at a highly satisfactory rate on capital invested in the business.

How the value of stock is enhanced: S. S. Kresge Company. Where the rate of earnings on invested capital is high, there is a strong incentive for the managers of the enterprise to retain a large share of net earnings in the business for expansion, thereby limiting the amount of common dividends. In the long run this likewise benefits the stockholders, for their equity is built up rapidly and the market value of their holdings increases. The history of the S. S. Kresge Company furnishes a splendid example of this very situation. This company, during the period from 1922 to 1929, on the whole showed excellent earnings on capital invested. The rate of return reached a peak in 1923 and after that year evidenced a gradual decline, as indicated by the following table:⁹

EARNINGS AND CAPITAL INVESTED—S. S. KRESGE
COMPANY: 1922 TO 1929, INCLUSIVE

<i>Year</i>	<i>Average Capital Invested</i>	<i>Earnings</i>	<i>Rate of Earnings to Investment</i>
1922.....	\$30,204,006	\$ 6,616,417	21.9%
1923.....	36,398,278	9,493,988	26.1
1924.....	44,861,131	10,114,164	22.5
1925.....	53,705,031	11,809,260	22.0
1926.....	63,211,298	12,504,442	19.8
1927.....	74,368,783	13,977,066	18.8
1928.....	86,707,095	15,642,853	18.0
1929.....	96,540,313	14,952,211	15.5

During the eight years covered, the company paid out only \$31,564,412 in cash dividends on its common stock, although net

⁹ For a more detailed discussion of "diminishing returns" among the leading chain store systems during this period, see Guthmann, Harry G., and Miller, Kenneth E., "Some Financial Tendencies among Leading Variety and Grocery Chains during the Past Decade," *Harvard Business Review*, January, 1931, pp. 248-254.

earnings, after preferred dividends were \$93,987,605. Earnings invested in the business thus amounted to \$62,423,193 for the period. Had all of these earnings been paid out in cash and no stock dividends declared during the period, additional dividends of \$342.45 might have been received on each share of the company's stock. The market value of the stock, therefore, should have appreciated during the eight years studied by an amount at least equal to the amount reinvested, in order that the stockholders might be compensated for their sacrifice in terms of dividends.¹⁰ The average price of the stock in 1922 was \$149.75 per share. In 1929 the average price was \$42.75 per share, but three stock dividends had been paid and a 10 for 1 stock split had occurred in the interim, giving the holder of a share of old stock 30 new shares for each share held. The 1929 value of an amount of stock equal to one share in 1922 was thus \$1,282.50, or \$1,132.75 in excess of the market value of the same equity in 1922. If we compare this sum with the \$342.45 that the holder of one share might have received in cash dividends, we may rightly infer that the conservative policy of the directors in this case resulted in a net gain of \$790.30 per share for the stockholders of the company. The price of the stock of a company reflects at any time not only the actual earnings of the corporation, but also the value of the right it carries to have a certain number of dollars reinvested each year in an enterprise that has demonstrated a given earning power. Logically, the higher the earning power the more value the right.

We are led to the conclusion, therefore, that the ratio of earnings to invested capital is highly important, particularly as far as the common stockholder is concerned. This ratio, taken in connection with the dividend policies of the corporation, may account in some measure for the apparently high prices at which some stocks sell in respect to earnings. In any event, an investment in the stock of a corporation that enjoys a high ratio of earnings as compared with the investment and that pays out only a portion of its current earnings in cash dividends, will frequently prove to be a very profitable commitment for the investor.

¹⁰ To say nothing of estimated interest thereon.

Financial Analysis—Industrials (Concluded)

Operating ratios. The term "operating ratio" has already been defined as the percentage of operating revenues consumed by operating expenses. The operating ratio of a corporation under normal conditions reflects its operating efficiency. It indicates that portion of its sales which is used up in actual manufacturing, selling, and administration, including depreciation on plant and equipment. The peculiar behavior of the operating ratios of a typical manufacturing corporation under different conditions has already been discussed.¹ The fact that during bad years operating expenses cannot be reduced in proportion to sales emphasizes the value of a low ratio during normal operations. It is possible to compare the present efficiency of a corporation with its past performances by a study of the ratios over a period of years. It is also possible to compare the operating ratios of different concerns in the same line of business to determine which concerns are the most efficiently operated. Other things being equal, concerns with the lowest ratios are the most desirable media for investment. Such concerns have the least to fear during periods of depression, and, if competition in the industry becomes severe, they are most likely to survive, because they can suffer the largest price cuts before showing deficits.

Operating ratio: U. S. Steel Corporation. To illustrate the way an analysis may be carried out in practice, we have made actual computations from the data given for the United States

¹ See pp 282 to 284.

Steel Corporation. To compute operating ratios, the section of the income account on the next page is drawn from "Income Account" shown in the preceding chapter.

Operating ratios of ordinarily successful industrial companies will run in the neighborhood of 90 per cent.² Where the ratio exceeds 93 per cent the situation is likely to be unfavorable, unless the volume of sales is high in relation to investment, as in certain merchandising lines. Where the ratio is below 80 per cent, the corporation is likely to be in a favored situation.

OPERATING RATIOS—UNITED STATES STEEL CORPORATION

	1939	1938
Gross Sales.....	\$904,151,897	\$632,533,383
Operating Expenses....	844,199,829	634,683,621
Net Operating Income....	\$59,952,568	\$3,150,238
Operating Ratio.....	93.3%	100.3%

Plant turnover. Another means of testing the operating efficiency of a given corporation is to determine the so-called "plant turnover." This may be defined as *the number of dollars in sales each dollar invested in fixed operating assets is able to produce*. This ratio is obtained by dividing gross revenues by the sum of the fixed tangible assets used in the regular operations of the corporation. Referring to the balance sheet of the United States Steel Company, on pages 308 to 309, we note that fixed assets were carried at \$1,122,157,114 on December 31, 1939. Sales for the year were \$904,151,897, or at the rate of 81 cents per dollar of property investment. While it would have been more accurate to have divided sales by the average book value of the property account during the period, the method here used is substantially correct, for the change in these accounts was relatively small during the period. Where the corporation is growing rapidly, it is better to find the mean value between the account at the beginning and the end of the period for purposes of computing turnover figures. Some analysts prefer to compare sales

²The following table illustrates the range of operating ratios for leading steel companies during recent years. Depreciation and taxes other than income taxes are included in expenses. The ratios indicate the fluctuations of the business.

OPERATING RATIOS—LEADING STEEL COMPANIES

Year	U. S. Steel	Bethlehem	Republic	National	Inland
1939.. .. .	93.3%	90.9%	92.6%	88.1%	86.9%
1938.....	100.3	95.5	103.2	88.3	89.5
1937.	88.6	89.7	93.4	82.8	85.8

with gross rather than net plant, to avoid the depreciation influence, which varies with the average age of assets.

The spread between market and book values of net worth of industrial corporations varies widely among different corporations. The market value of the company's stock is sometimes more, sometimes less, than the net assets shown in the balance sheet. A practical explanation of this situation may be found in the variation in plant turnover and operating ratios between different companies. One might make the following general statement: A dollar of book investment in a corporation whose plant turn is \$2 a year per dollar of investment and whose operating ratio is 80 per cent, is worth more to the investor than an equal investment in another plant whose turnover is but once a year and whose operating ratio is 90 per cent. In the first case, a dollar of book investment produces a profit of 40 cents; in the latter case only 10 cents. The ultimate profitableness of an investment, therefore, depends on the amount of gross business that it is capable of yielding and the margin of profit on that business. As a check on the earning power of a given investment it is often desirable to compute plant turnover as just defined and to compare it with operating ratios. In the steel industry a plant turnover of once per annum is considered reasonably good, although in many manufacturing fields a turnover of two or more times a year is not uncommon.

Current position: ratio of current assets to current liabilities and of cash to current liabilities. The next set of ratios to be discussed relates to the current position of the corporation; that is, the extent to which it is provided with liquid assets. The ratio most commonly used for this purpose is that of current assets to current liabilities. In banking circles it is a generally accepted fact that current assets should be equal to at least two times current liabilities. Current assets of the United States Steel Corporation, on December 31, 1939, amounted to \$575,877,137 and current liabilities to \$143,888,691. The current ratio for this concern thus equaled 4:1. This line of inquiry may be carried somewhat further and the ratio of cash and marketable securities to current liabilities may be ascertained. For the U. S. Steel Corporation this ratio was 1.29:1.

One essential reason for pursuing such a line of inquiry is to ascertain how well the corporation is prepared to meet all current liabilities. Current liabilities, such as accrued wages, accounts and notes payable, interest, and the like, must be met

due. It is true that current assets supposedly may or will be turned into cash within a short period, yet there is always uncertainty as to the time required for this process. Furthermore, concerns with adequate working capital can take advantage of cash discounts, can expand current operations when necessary without bank borrowings, and are always in a position to increase inventories of raw materials when prices are advantageous.³ Where the amount of cash on hand is sufficient to meet all current liabilities, it is true that the 2:1 minimum ratio loses some of its significance. So long as adequate cash is available to pay all current debts, any further check upon the adequacy of current assets to meet current debt becomes unnecessary.

Inventory turnover. Another indication of strength in current position is inventory turnover, which may be defined technically as *cost of goods sold divided by the average value of inventories on hand*. It is often impossible for the analyst to ascertain the cost of goods sold, so the gross revenues or sales figure must usually be substituted. Where inventories remain fairly constant throughout the year, it is sufficiently accurate to compute inventory turnover by dividing gross revenues by inventories at the year end or by the average value of inventories at the beginning and end of the period. The question may be asked: What relation does inventory turnover have to current position? The answer is just this: The more rapidly inventories can be made to turn over, the more closely they approach cash in their nature. A corporation whose quick assets consist largely of slow-moving inventories must maintain a much higher ratio of current assets to current liabilities than one whose current assets are composed of cash, receivables, and quick-moving inventory. The United States Steel Corporation, according to the reports we presented in the preceding chapter, turned its inventories 3.07 times, based on year-end data, or 3.15 times, based on the average inventory during the period. An inventory turnover from 3 to 5 times may be considered normal for manufacturing corporations, the figure varying considerably from industry to industry.

Book value of common stock and earnings. Several other miscellaneous items should be investigated before our general financial analysis can be considered as finished. These items

³A strong cash position also assists a corporation in maintaining its usual dividend payments during periods of depression and furnishes a further safety factor for the payment of bond interest.

pertain more especially to the common stock of the company. The book value of the assets behind common stock is of interest, even though this gives no clue as to the market value of the stock. Investors, however, are disposed to feel that stocks protected by substantial book assets are more secure than stocks that sell largely on the basis of earnings and that are not protected by substantial tangible assets. Undoubtedly the theory of those who hold this view is that the existence of large tangible assets constitutes a sort of insurance against excessive competition. That is, companies and industries which are able to earn at a relatively high rate on their book investment naturally invite the investment of further capital. New concerns are attracted into the field by this situation, a possibility that certainly militates against stability in current earning power. There may be a disposition, however, to over-emphasize the ability of a large fixed investment to protect a company against competition. Furthermore, we find at this point a direct contradiction of certain observations previously made. If a high capital investment is required to support a given market value, then, *per se*, the rate at which capital invested in the business is able to earn must be low. Plant turnover must also be low and operating ratios relatively high. Otherwise, the earnings resulting from a given book investment would be so high that the market value of the common stock of the company would tend to exceed its book value.

This statement may easily be explained by reference to data for the United States Steel Corporation. We have already seen that this corporation in 1939 earned on its total capital investment about 3.28 per cent. This is a very low return and is indicative of the depression in the heavy goods industry. The operating ratio of the company for the year 1939 was 93.3 per cent, while investment in plant was turned only about .81 times. The book value of the common stock, December 31, 1939, was approximately \$109.70, exclusive of \$9.76 in "Reserves," while the average price for the year was only \$62.00. Per share earnings in 1939 were \$1.80. The stock thus averaged to sell on a multiple of 34.4 times earnings, or on a 2.9 per cent capitalization basis. Such a high price in relation to earnings indicates an expectation of their reaching an even higher level.

The investor will review the record of the company and its background in an attempt to estimate the probable future earnings. A study of probabilities is necessary with respect to (1)

the volume of business, (2) the prices at which the business will be taken, (3) operating ratios, (4) fixed charges, and (5) taxes upon income. Business volume is estimated in the light of the past with due weight given to trends and cyclical factors. For the steel industry, the future of business volume might be deemed unfavorable because of the record of the 1930's and the passing of the period of maximum population expansion. A rising standard of living, however, could call for further expansion of the capital equipment and consumers' goods, like automobiles and refrigerators, on a per capita basis. At the time of writing (1941), the expansion of our national defense program has raised steel mill activity to a high level, but the situation is regarded as temporary and unhealthy.

The general commodity price level tends to fluctuate with the general business activity, but more important is the individual industry's price situation by which physical volume is multiplied in order to obtain total sales revenue. Operating ratios tend to move perversely, rising when business is poor and *vice versa*, because of the backlog of fixed expenses which do not vary readily with changes in volume. Probable changes in the capital structure that will reduce fixed charges or alter income taxes must be considered. Since Federal tax rates change radically, the effect of prospective rates must be applied to past earnings to interpret their significance.

After the analyst has weighed the income probabilities, he may go further and study the rate at which past earnings have been capitalized by the market, in order to judge what constitutes a reasonable investment price. Because market prices fluctuate so violently over short periods of time, the problem of timely purchase cannot be ignored.

It was previously stated that corporations with a high rate of earnings on invested capital, other things remaining equal, are more desirable as media for investment than are low-earning corporations. Yet, as the rate of earnings on invested capital increases, earnings on common stock increase, the price per share of the stock advances, and the stock is often found selling substantially above book values. This line of analysis seems to indicate that intangible assets are even more valuable than tangible assets. What is the answer to this seemingly contradictory statement? From an abstract point of view, both lines of argument have some merit. In a concrete case, however, it is always necessary first to determine how dangerous the lack of physical

or tangible assets is. If the business is old and established and has intangible elements of value, the investor must ask what gives rise to that value—location, patents, research, management, trademarks—and how permanent these advantages are. In new enterprises, where competitors are not prevented from capturing the field by the existence of an established name and personnel or where rapid changes are probable, the existence of a high rate of earnings is very likely to invite new capital and to threaten the current earning power of companies already in the field.

Earnings per share of common, current dividends, and market values. The relation of common stock earnings to market values is, of course, a matter of interest to those who purchase common stocks in preference to preferred stocks and bonds. It has consistently been our contention that the market value of common stocks is a function of *earnings available* and of the risk factors involved in the industry and in the concern itself. By a comparison of the multiples at which the stocks of various companies sell in relation to earnings, it is possible to determine which appear to be cheap and which appear to be high priced. The current dividend rate on common stock is another factor that has some bearing on values, although it is impossible to lay down any general rules in this respect. One would ordinarily suppose that current dividend rates would have a decisive effect on market prices. It is possible, however, for a stock to continue selling for years on the basis of earnings rather than of current dividends. This fact is especially true of companies that are growing rapidly and consequently can use all earnings to good advantage for developmental purposes. Such companies sometimes substitute stock dividends for cash dividends.⁴ In this way the stockholder is given some evidence of the additional investment in the business that has been made for him by the directors. Where payments are made in this way, the small investor is likely to feel that he is being treated better than when earnings are simply credited to surplus, although there is no fundamental difference, so far as the extent to which he is per-

⁴ See particularly, North American Company, which paid only stock dividends for an extended period. Quarterly distributions in stock began October 1, 1923, and continued to January 1, 1933, at the rate of 10 per cent per annum. This rate was then reduced (April 1, 1933) and later a cash dividend was initiated (April 1, 1934), which became the sole form of distribution on January 2, 1935. Tampa Electric Co. paid both stock and cash from March, 1927, to November, 1931.

mitted to participate in the assets and earnings of the company is concerned.

On the other hand, stocks of companies that are barely able to earn current dividends, or that are paying current dividends out of surplus, often sell at prices so low that one is justified in assuming that current dividends are an insignificant factor in determining the market value of stock.

Figure 26, which appears on page 827, shows stock prices as multiples of dividends and gives an index of bond prices prepared in a similar manner for the period 1900-1935.⁵ It appears that for the period 1900 to 1920, common stocks averaged to sell from nearly 25 to slightly over 10 times their dividends, with the trend declining steadily. From 1921 to 1929, however, the trend was distinctly upward, ranging from 11 times dividends in the early part of 1921 to 27 times dividends late in 1929. The drop, which started in October, 1929, and reduced prices from 27 times to less than 8 times dividends in the middle of 1932, was the most precipitate of any experienced during this period of three and one-half decades. For the entire period, these common stocks sold on the average at about 17 times their current dividends, or at a yield of about 6 per cent on their market price. While stock yields are shown as fluctuating more violently than bond yields, the chart indicates the common long-term trend (secular trend) of the two forms of investment return, and also that there is a strong tendency for them to show similar direction of movement in the business cycle. During years when the yields on bonds were high, the dividend yields of stocks were also high; whereas during years of low bond yields, the situation in respect to stocks was similarly reversed. The conclusion from this material is that money rates are a basic influence in determining the general level of stock and bond prices. It should be remembered that both dividends and earnings, which are capitalized by the market in the light of money rate conditions, are themselves variable factors, unlike the fixed interest return paid upon bonds.⁶

Necessity for comparative analysis. Up to the present time attention has been directed to a series of ratios that may be derived from the income accounts and balance sheets of a corporation for the purpose of measuring its financial position. Valuable as such measurements are by and of themselves, they become

⁵ *Business Bulletin*, Cleveland Trust Company, July 15, 1935. Some stocks other than industrials are included.

⁶ See comment accompanying Figures 26, page 827.

more useful if they can be compared with standards. In the field of investments, as in other sciences, standards are a matter of relativity. A mere statement that the temperature stands at 50 degrees Fahrenheit in a given locality at any instant does not tell us whether it is high or low, as compared with readings on previous dates for the same locality, or as compared with readings of other localities. In fact, it is not until we have made the proper comparisons that we can arrive at any conclusions of this nature.

So it is with our problem. Thus far, a method for making certain measurements has been constructed. The next problem is to derive a workable plan whereby not only the present measurements, or ratios, for a given concern can be compared with its past records, but the records of one concern can also be compared with those of other concerns in the same industry.⁷ In this way only can we determine the relative desirability of the securities of one company as compared with those of another company, in so far as the financial conditions of the two concerns are involved.

Financial analysis card for comparisons. In order that comparisons of this nature may be made more readily, a "financial analysis" card form, shown in Figure 12, is suggested. This device not only facilitates the kind of analysis already suggested but also the preparation of comparative studies of industrial companies. The card provides a convenient arrangement for collecting all the data necessary for computing the ratios suggested in the preceding discussion, as well as for entering these ratios for a given concern over a period of years. On the reverse side of the card, quarterly data may be entered if desired.

The first section of the card is devoted entirely to a collection of the data necessary for the computation of the ratios called for. From a purely mechanical standpoint, there is a distinct advantage in collecting and arranging at the outset the items to be used in subsequent computations, especially where a rearrangement of the original corporation accounts is necessary, as is frequently the case in practice. The computation of ratios thereafter becomes merely a matter of arithmetic. Where the computations are made by actual division on a machine, or otherwise, it is sufficient to use only the first two or three digits of each

⁷ For other suggestions on form, see Graham, Benjamin, and Dodd, D. L., *Security Analysis* (New York: McGraw-Hill Book Co., 2d ed., 1940), Parts V and VI; and Guthmann, H. G., *Analysis of Financial Statements* (New York: Prentice-Hall, Inc., rev. ed., 1935), p. 261.

number. Computations may be facilitated, however, by the use of the slide rule, which gives sufficient accuracy for all practical purposes.

The lower half of the card is devoted entirely to the presentation of the ratios that have been discussed in this chapter and the previous one, although the ratio of cash to current liabilities is omitted and a slight rearrangement in order is made. The grouping used on the card was adopted with the idea of securing a satisfactory arrangement from a mechanical standpoint. It will be observed in this connection that each section of the lower half of the card contains, so far as possible, a group of more or less related ratios. The first section is devoted entirely to an analysis of the capital structure of the corporation under consideration. Here is shown the percentage of capitalization made up of bonds, preferred stock, and common stock and surplus. The relation of the par value of bonds and preferred stock outstanding to the market value of the underlying assets, as measured by the current prices of the common stock of the corporation, is likewise indicated.

It should be clearly understood, when the ratio of debt to the market value of the investment is computed, that the market value of total investment theoretically should be found by multiplying the amount of each security outstanding by its current market price. In practice, however, it is customary to take both bonds and preferred stock at par, unless the latter is selling at a substantial discount. For our purposes, it is usually sufficiently accurate to consider the preferred at par, unless it is selling at a discount of 25 per cent or more. In this way one avoids considerable work as well as the logical difficulties that arise because the market price of the preferred stock is often determined by the specific dividend rate it bears. The same situation exists when one computes the ratio of preferred stock combined with debt to the market value of net worth. Here the preferred stock may be taken at par, but common stock should be considered at its current market value.

The second section is devoted in a general way to an analysis of earnings. Here are presented such matters as the relation of earnings to fixed charges and to preferred dividend requirements, and the percentage earned on total investment. It is highly desirable, when the investment position of bonds and preferred stocks is analyzed, to consider as closely related the protection

afforded by assets and by earning power. For this reason these two matters are considered in consecutive sections.

The remaining sections are somewhat less definite in scope: the

FINANCIAL ANALYSIS					
COMPANY _____					
DATA					
Year	19	19	19	19	19
Gross Sales					
Operating Expenses					
Total Income					
Fixed Charges					
Net Earnings					
Preferred Dividend Requirements					
Total Assets					
Total Investment (Bonds & Net Worth)					
Funded Debt					
Preferred Stock					
Common Stock & Surplus (excl. Intangibles)					
Current Assets					
Current Liabilities					
Working Capital					
Property Account (net)					
Inventories					
Depreciation Allowance for Year					
Market Value					
Total Investment					
Net Worth					
Common Stock Equity					
RATIOS					
% Investment in Bonds					
% Investment in Pfd Stock					
% Investment in Com. & Surplus					
Ratio Debt to Mkt. Val. Investment					
Work. Cap. per \$1000 Bond					
Ratio Cur. Assets, Cur. Liab.					
Number Times Charges Earned					
Number Times Pfd. Div. Earned					
Number Times Chges. & Pfd. Earned					
% Earned on Total Investment					
Operating Ratio					
Plant Turnover					
Inventory Turnover					
Average Market Price Common					
Earnings per Share Common					
Dividends per Share Common					
Book Value Per Share Common					

Figure 12—Industrial Financial Analysis Card (obverse).

third is used to designate what may be termed "management ratios," such as the operating ratio, inventory turnover, and plant turnover, and the last, to indicate the market price of common stock, its earnings, dividend record, and its book value.

Use of analysis card illustrated. In order to demonstrate the manner in which this card may be used for the purpose of analyzing the financial progress of a corporation over a period of

FINANCIAL ANALYSIS					
COMPANY _____					
QUARTERLY EARNINGS					
Year	19	19	19	19	19
QUARTERLY EARNINGS					
<i>1st Quarter</i>					
Earnings per Share Common					
Annual Rate					
Average Price					
Cur. Ratio Price to Earnings					
Our Estimated Value					
<i>2nd Quarter</i>					
Earnings per Share Common					
Annual Rate					
Average Price					
Cur. Ratio Price to Earnings					
Our Estimated Value					
<i>3rd Quarter</i>					
Earnings per Share Common					
Annual Rate					
Average Price					
Cur. Ratio Price to Earnings					
Our Estimated Value					
<i>4th Quarter</i>					
Earnings per Share Common					
Annual Rate					
Average Price					
Cur. Ratio Price to Earnings					
Our Estimated Value					
REMARKS:					

Figure 12—Industrial Financial Analysis Card (reverse).

years, a five-year analysis of the United States Steel Corporation has been prepared. Because of the limitations of space, the material presented here and in succeeding illustrations represents only a few years. In any thorough study it is essential to examine figures over a period of sufficient length so that earnings

performance can be seen under both favorable and adverse conditions. A period of ten years is sometimes recommended since it is certain to include some prosperous and some depression years.

Figure 13 reproduces in full both the data and the ratios for this company for the period 1935 to 1939, inclusive. The funded debt constitutes a very moderate proportion of the capital structure throughout the five-year period under review. In 1938 the peak percentage was only 15.7. The increases up to that year suggest some expansion and rehabilitation. Comparison of the \$216,502,000 of long-term debt with either the net fixed property of \$1,122,157,000 or the working capital of \$431,988,000 indicates that the amount is within conservative limits. There is \$1,756 of working capital per \$1,000 of fixed debt, or $1\frac{3}{4}$ times, or more than the 100 per cent which is regarded as the conservative minimum. General financial ease is indicated by the satisfactory current ratio of never less than 4.00.

The earnings picture is not so bright, with less than enough to pay fixed charges in 1938 and only 2.02 coverage in 1935. That the charges are inconsiderable is seen on the swing to a coverage of 25.21 in the prosperous 1927. The average coverage for the five years is 9.60, or well over the conventional standard of 3.00 for industrial bonds of investment quality. (Where the debt changes greatly from year to year a more useful measure would be to compare average earnings with the charges at the end of the last year, since they, rather than charges of earlier periods, are the burden which earnings have to carry). With substantial working capital to draw upon in occasionally bad years, this fluctuation record loses much of its investment hazard. Furthermore, this company shows large allowances for depreciation and depletion, which in years that require no replacements or capital expenditures represent funds that can be employed for interest or debt retirement. It is for this reason that some analysts compute coverage *before* depreciation to show short-run ability to meet charges.

The position of the preferred is much less secure. It forms only a moderate part of the capital structure,—bonds and preferred are 37.6 per cent of the total. Normal earning power at a stable level should be enough to give it a very good rating, but the earnings on total investment have been low and variable. They have ranged from seven per cent in 1937, to practically nothing in 1938, averaging three per cent. On the basis of aver-

Figure 13—Financial Analysis of United States Steel Corporation, 1935 to 1939, Inclusive (Unit, \$1000).

Year Ending December 31	1935	1936	1937	1938	1939
Gross Sales & Revenues.	\$ 776,348	\$1,090,931	\$1,080,762	\$ 632,533	\$ 904,152
Cost of Goods & Oper. Expenses.	772,037	1,036,498	962,379	634,683	814,199
Total Income.....	10,032	66,701	129,383	3,473	63,408
Fixed Charges (excl. Fed. Taxes).	4,960	4,918	5,111	8,262	9,313
Net Earnings (after Taxes)...	1,147	50,593	94,944	7,717	41,120
Pfd. Dividend Requirements...	25,220	25,220	25,220	25,220	25,220
Total Assets (less Offset Res.)...	1,822,402	1,603,419	1,658,360	1,711,279	1,768,324
Total Bonds & Net Worth.....	1,670,123	1,316,247	1,372,415	1,542,619	1,631,309
Long-Term Debt	105,750	112,288	120,572	243,712	216,502
Preferred Stock	360,281	360,281	360,281	360,281	360,281
Common Stock and Surplus	1,204,092	843,678	891,562	938,626	954,526
Current Assets.....	463,184	485,166	480,737	510,339	375,577
Current Liabilities.....	72,247	103,558	117,331	79,261	143,889
Working Capital.....	380,896	381,609	363,406	431,077	431,988
Property Account (net)....	1,335,510	1,089,479	1,150,064	1,166,520	1,122,137
Inventories.....	258,805	288,004	331,479	307,479	294,593
Depreciation & Depletion....	47,801	55,467	50,589	48,533	60,640
Market Value:					
Total Investment.....	905,458	1,020,864	1,242,388	1,078,320	1,118,640
Net Worth.....	699,708	908,576	1,121,816	834,608	902,058
Common Stock Equity.....	339,427	518,293	761,535	474,327	641,777

Ratios

Per Cent Investment in Bonds ..	6.3	8.5	8.8	15.7	14.1
Per Cent Investment in Pfd. Stock.	21.3	27.4	26.3	23.3	23.5
Per Cent Investment in Com. & Surp.....	72.2	64.1	64.9	61.0	62.4
Ratio Debt to Market Value Invest.	1 : 2.3	1 : 2.4	1 : 2.5	1 : 2.2	1 : 2.3
Work. Capital per \$1000 Debt...	3.508	3.398	3.014	1.709	1.756
Current Assets: Current Liab.	6.27	4.68	4.10	6.46	4.00
Number Times Fixed Charges Earned.....	2.02	13.56	25.21	0.42	6.81
Number Times Pfd. Dividends Earned....	.05	2.01	3.76	.	1.63
Number Times Charge & Preferred Div. Earned (after Taxes)	.30	2.52	3.06	.01	1.92
Per Cent Earned on Total Invest.	0.36	4.21	7.03	.04	3.29
Operating Ratio	99.4	94.2	88.6	100.3	93.3
Plant Turnover	58.0	81.5	98.9	65.7	80.6
Sales ÷ Final Inventory...	3.00	3.85	4.21	2.49	3.06
Average Market Price Common	39	63	87 1/2	54 1/2	62 1/2
Earned per share Common	d. 2.76	2.91	8.01	d. 3.78	1.83
Dividend per share Common	...	...	1.00	...	...
Book Value per share Common	131.62	134.54	141.56	107.85	109.67

age earnings (after taxes) of \$42,534,000 and interest charges of \$9,313,000 in 1939, there is an average balance of but \$33,221,000 for the \$25,220,000 preferred dividend requirement. This balance is only about $1\frac{1}{3}$ times the \$7 preferred dividend, or a coverage of about $1\frac{1}{2}$ times for combined fixed and contingent charges.

The unimpressive record of the common stock over this period, with only a nominal dividend in the one year 1937, makes detailed analysis unnecessary to reveal its speculative quality. The three preceding years, 1932-1934, were marked by substantial, though decreasing, deficits. Dullness in the heavy goods industries—notably in construction and railroad equipment—explains the dismal record. However, the return upon total invested capital taken at book value has been low for the whole industry since World War I.

The earnings of 20 leading iron and steel companies, comprising 90 per cent of the country's ingot capacity in 1930, averaged only 6.31 per cent for the six-year period 1925-1930, inclusive. In 1928, the earnings were 6.55 per cent; in 1927, 5.22 per cent; and in 1926, 6.86 per cent.⁸ The general business prosperity of 1929 was reflected in earnings of 9.88 per cent. The initial influence of the depression appeared in 1930, when earnings dropped to 3.71 per cent.

The poorer than average record of United States Steel is shown in the accompanying table of earning power on book value for some leading companies in the industry during the years 1934-1939:

PER CENT RETURN (BEFORE INTEREST) ON INVESTED CAPITAL
FOR SOME LEADING STEEL COMPANIES: 1934-1939*

	1939	1938	1937	1936	1935	1934
American Rolling Mill ...	4.22	d .27	8.43	9.24	7.05	3.75
Bethlehem Steel.....	5.75	2.12	6.97	3.84	2.16	1.34
Inland Steel.....	10.23	5.52	12.62	13.59	11.97	6.57
National Steel	8.42	5.68	14.48	10.72	9.44	6.32
Republic Steel.....	5.42	d1.08	5.27	5.67	3.19	d .04
U. S. Steel.....	4.10	.23	7.55	3.97	.60	d .57
Industry.....	5.02	.87	7.53	5.06	2.32	.49

* S.E.C., *Survey of American Listed Corporations*, Vol. I, No. 8, on Steel.

However, in interpreting figures of this sort, one must think of them in terms of the light they throw on future possibilities. For instance, the expansion of our national defense program

⁸ *Steel*, April 23, 1931, Vol. 88, p. 36.

under the stimulus of World War II would mean capacity operations and substantial earnings improvement. The conservative financial policy of the company in recent years would augur that a major part of such earnings would go to retire debt and bolster working capital for the post-war readjustment unless required for further fixed asset additions. In spite of the unimpressive investment record, the common stock enjoys wide popularity as a speculation. The very size and leadership of the company means that it will inevitably reflect the rise and fall of industrial activity.

Common stock, book values, and earning power. In valuing the common stock of an industrial company, the market places much greater emphasis on per share earnings than on book values. Accordingly, a wide discrepancy is often found between the market value of stocks and their book values. In some instances, the market value of stock is in excess of its book value; in other cases it is below. In either case investors are likely to place primary emphasis upon earnings; asset values would be of first-rate significance only in case of liquidation. The amount of assets, then, is likely to be a secondary influence in determining the value of a common stock, probably influencing the investor's appraisal of risk in some cases. The common stock of the company just studied has sold regularly at a price much lower than book value.⁹ Substantial book value can be useful as protection in a period when the Federal Government levies excess profits taxes, excess return being measured against invested capital as recorded by the accounts.

The estimate of risk will determine the rate at which earnings will be capitalized to arrive at a market valuation of common stock. The rate at which the earnings of various concerns should be capitalized will, therefore, vary. Also, average rates of capitalization will vary from time to time with fundamental market conditions.¹⁰ The average ratio of earnings to the market price of representative industrials, based on annual data for the years 1922 to 1939, inclusive, is shown in the following table; the fig-

⁹ Book value in the years 1935-1937 includes intangibles, which it is usually desirable to eliminate in analytical work. The resulting figure is referred to as "net tangible assets per share of common." Intangibles were not separately reported for this company until 1936.

¹⁰ For a further discussion of methods of valuing common stocks of industrials, securities, and rates of capitalization, see Badger, R. E., *Valuation of Industrial Securities* (New York: Prentice-Hall, Inc., 1925), Chapters XI and XII.

ures may be compared with the similar ratios for United States Steel common.

RATIO OF EARNINGS TO MARKET PRICE OF 20 LEADING
INDUSTRIAL AND UNITED STATES STEEL
COMMON STOCKS

Year	Rate Earned by Leading Industrials	UNITED STATES STEEL		
		Rate Earned	Earned per Share	Average Market Price
1939..	6.8%	2.9%	\$ 1.83	62.3
1938..	5.0	..	3.78 def.	54.6
1937..	6.7	9.2	8.01	87.5
1936..	5.7	4.6	2.91	63.1
1935..	5.8	..	2.77 def.	39.1
1934..	4.9	..	5.39 "	44.6
1933..	5.1	..	7.09 "	45.4
1932..	5.8	..	11.08 "	36.9
1931..	5.8	..	1.40 "	94.2
1930..	5.1	5.5	9.12	166.2
1929..	5.5	10.3	21.19	205.9
1928..	6.0	8.2	12.50	152.4
1927..	6.6	6.1	8.81*	143.7*
1926..	8.8	13.1	17.99	137.2
1925..	8.8	10.2	12.86	125.8
1924..	10.0	10.9	11.77	107.7
1923..	10.7	16.8	16.42	97.6
1922..	10.6	2.9	2.84	96.7

* Stock dividend of 40 per cent in 1927.

The average rate at which the market capitalizes common stock earnings is chiefly dependent upon: (1) the general return available in the form of "pure" interest as reflected in high-grade bonds; and (2) the premium demanded in the way of higher return for the extra risk. That this premium is very variable and has fallen in recent years is apparent from the average figure for twenty industrial stocks. In the comparison with leading industrials it would appear that the market has not given very great weight to the more-than-average risk of the highly fluctuating steel business. The leading position of the company and its attraction as a speculative vehicle have sustained its price at a comparatively high level. In fact the almost complete absence of earnings and dividends in the later years meant that there was no adequate basis for capitalization. Only in 1937, when earnings were 9.2 per cent of average market price, did they appear to rationalize that price. Such a stock represents the hope of earnings in times of greater activity in the heavy goods field.

such as was witnessed in the 1920's and which will probably continue during World War II.

The chief weakness of the common stock is the instability of the iron and steel trade, notoriously "either a prince or a pauper." Such an issue, unsuitable when held by itself because of the uncertainty of its income, is most properly placed in a well-diversified portfolio of an individual with some means. Here its fluctuations will tend to adjust the income of the fund to the changing purchasing power of money. The chief objection to such a stock is its popularity as a leader, which may readily cause it to be overvalued in the optimism of prosperous periods and may blind the unskillful to its weaknesses when changing fundamental conditions sap its position of leadership and leave it with greatly diminished earning power. A large corporation is not always profitable to its owners.

Suggested method for comparing a group of selected companies. Another possible use to which the type of analysis already suggested may be put involves a comparison of the ratios of a selected corporation with the combined ratios of a group of other selected corporations in a similar line of business. Assume, for example, that it was desired to compare the United States Steel Corporation with other steel companies. An analysis, similar to the one just presented, might be prepared for a group of leading steel companies and ratios for a given company compared with those of the other companies, or the data might be combined for the entire group and a composite set of ratios for the group as a whole worked out. In this way it could be determined which companies were the most conservatively managed and which were in the most desirable financial condition.¹¹

Further methods of analysis: use of per spindle data in textile industry. In addition to the more or less general analysis so far suggested in respect to industrials, it is often possible to work out more specific lines of inquiry that are adapted to particular industries. For cotton textile mills, for example, it is possible to work out statistics on a "per spindle" basis for com-

¹¹ A recent yearbook some of the leading investment services that supply financial information have prepared ratio and percentage material that reduces the labor of computation (e.g., *Moody's Manual of Investments* and *Poor's Manual*). It is sometimes necessary to check such computations to be certain that they are arrived at in a manner that makes them fairly comparable from year to year and from company to company. See also Securities and Exchange Commission, *Survey of American Issues of Corporation Securities*, covering 1932, chapter 10, section 10.10.

parative purposes. When this basis is used, however, it is necessary to classify the mills that are being studied. Some mills may do nothing but spin, others do both spinning and weaving, while still others do both spinning and weaving and operate their own finishing plants as well. When the "spindle" is used as a basis for comparison, therefore, it is important to compare mills similarly situated and having somewhat similar equipment.¹² Following are some of the various comparisons that may be worked out on a per spindle basis.

Let us consider first the question of market prices per spindle. By obtaining the prices of the various securities of the mill, one may determine the price that the market places on the property, reduced to a per spindle basis. In the various illustrative data to be presented in this connection, it is assumed that there is only one class of stock outstanding, and that the corporation has no bonds outstanding. This assumption is in substantial accord with the situation in New England, at least, where practically all cotton mill financing has been done with common stock only or with common and preferred stocks. To illustrate how the market price per spindle may be obtained for a typical mill, let us assume that it has outstanding 60,000 shares of stock (this being the only outstanding security) and that the market value of this stock is \$63 a share. This mill, we shall further assume, is equipped with 236,500 spindles. It is apparent that the market value of the entire investment is \$3,780,000. This total value gives a gross valuation of \$16 per spindle.

It is possible, however, to refine the analysis somewhat at this point. It is evident, on second thought, that the valuation of \$16 per spindle previously suggested represents the market val-

¹² The following table will serve to illustrate the differences in costs for mills with different types of equipment:

ESTIMATED PER SPINDLE COST OF COTTON MILLS

<i>Type of Mill</i>	<i>1912</i>	<i>1919</i>	<i>1923</i>	<i>1927</i>
	<i>to</i> <i>1914</i>	<i>to</i> <i>1920</i>		
Ordinary Weaving Mill with Plain Looms	\$20.00	\$50.00	\$45.00	....
Ordinary Weaving Mill with Automatic Looms.	23.00	55.00	50.00	\$45.00
High Grade Yarn Mill with Combers and Twisters.	30.00	70.00	62.00	.. .
Tire Fabric Mill.	35.00	90.00	75.00	....

Silk equipment adds from 10 per cent to 15 per cent to above prices.

Bleaching and finishing add from 15 per cent to 20 per cent to above prices.

Mill villages add from 15 per cent to 20 per cent to above prices.

uation of both plant and net quick assets. If, now, we deduct net quick assets at par from our total valuation of \$3,780,000, assuming these to be carried at \$1,618,860, we obtain a valuation of \$2,161,140 for the plant alone. This figure is equivalent to the value of \$9.14 per spindle put on the plant, exclusive of net quick assets. Another way of arriving at this figure is first to compute the total market value per spindle for the entire business, and then to ascertain net quick assets per spindle and to subtract this from the total per spindle valuation.

An analysis of this nature is not especially significant when applied to a single mill, but when a group of mills is studied, some interesting comparisons are possible. The two tables following show the way in which per spindle data may be used in the study of cotton mills. Five New Bedford mills, were selected for this study in 1925, which were more or less similarly situated. Balance sheet data are compared with the prices of the stocks on or about June 1, 1926.

DATA FOR FIVE SELECTED NEW BEDFORD MILL STOCKS: 1925*

Mill	Net Quick Assets	Shares Stock	Spindles	Market Value per Share June, 1926	Average Earnings 1920-1925 Inclusive	Net Plant Account Book Value
Acushnet. . .	\$1,489,296	20,000	114,240	\$82.00	\$255,394	\$1,703,075
Butler.	540,990	23,000	155,000	64.00	288,050	2,267,540
Kilburn.	2,501,237	22,500	126,464	115.00	417,368	1,566,701
Wamsutta. . .	1,618,646	60,000	236,000	63.00	454,954	5,382,362
Whitman. . . .	1,187,495	30,000	177,608	90.00	355,136	2,369,039

* Data for this table were furnished through the courtesy of Sanford & Kelly, brokers, Fall River and New Bedford. Computations, however, were made by the authors.

The following table reveals certain interesting information. The first matter that strikes one's attention is the very high ratio of average earnings to market value and the very low per

DERIVED INFORMATION ARRANGED FOR COMPARATIVE PURPOSES

(Five New Bedford Mills, 1925)

Mill	Total Market Value per Spindle	Net Quick per Spindle	Market Value Plant per Spindle	Average Earnings per Spindle	Average Earnings per Share	Ratio 6-Year Average Earnings to Market Value
Acushnet. . .	\$14.36	\$13.04	\$1.32	\$2.24	\$12.75	15.5%
Butler.	9.50	3.50	6.00	1.85	12.52	19.5
Kilburn.	20.46	19.78	.68	3.30	18.55	16.1
Wamsutta. . .	16.00	6.85	9.15	1.92	7.58	12.0
Whitman. . . .	15.20	6.68	8.52	2.00	11.84	13.2

spindle values placed on the plants of these mills.¹³ The reason for this situation, of course, is to be found in the low state of prosperity in the entire industry at the time this study was made, especially in New England. It is now possible to determine which of these stocks was selling on the most favorable basis in respect to earnings and spindles. This information may be made more clear by a study of the following schedule and by the accompanying discussion:

COMPARATIVE PRICES ON PER SPINDLE
AND EARNINGS BASIS

(Five New Bedford Cotton Mills, 1926)

<i>Mill</i>	ORDER IN WHICH STOCKS SOLD	
	<i>On Basis of Spindles (in reverse order)</i>	<i>On Basis of Earnings</i>
Acushnet...	2	3
Butler	3	1
Kilburn...	1	2
Wamsutta...	5	5
Whitman...	4	4

From this study it appears that the stocks of the Kilburn Mills were selling at the lowest price in relation to the number of spindles and net quick assets per spindle, and second lowest on the basis of earnings. The highest-priced stocks at that time appeared to be those of the Wamsutta Mills, with the Whitman Mills next in order.

It is apparent from the very extreme variations that too much emphasis should not be placed on this check upon valuation. While the Kilburn mill stock was available on a basis equal to \$.68 per spindle, the Wamsutta stock was selling at a price equivalent to \$9.15 per spindle. The much greater similarity of the rates earned upon market value supports the general principle that investors are primarily concerned with earning power rather than with the original cost or the cost of replacing the supporting assets. The highest-priced stock in terms of earnings, Wamsutta, capitalized earnings at 12 per cent; the lowest-priced stock, Butler, had a capitalization rate of 19.5 per cent. Per spindle values, like book values, are suggestive and must not be considered as final evidence by the student of investment values.

¹³ Compare with the cost table presented on p. 342. All of these mills did both weaving and spinning. In making analyses of this kind, no reference is made to looms or other equipment of a complementary nature, for the requirement per spindle for accessory equipment, such as looms, etc., is more or less standard in the textile industry.

Unquestionably the investigator should know something of the management and physical condition of the mills, as well as of the course of earnings during the past several years. If one examines the annual record of earnings of the Butler Mills, for example, he will note that the mill showed a deficit in 1924 and that earnings were only \$11,335 in 1925, a figure which was far below the five-year average. The Whitman and Wamsutta Mills, on the other hand, had behind them a long record of successful operation and the management had an established and enviable reputation, which factors may account for their presence at the other end of the table. Statistical analysis at best is only a part of the entire work of selecting investments.

Special methods of analysis applicable to sugar companies. Another example of the way in which a general study may be pursued somewhat further is found in the sugar industry. Here it is customary to reduce many statistics to a "per bag" basis for comparative purposes. By the per bag capitalization, or market price, of sugar companies is meant the capitalization of the company, or the market price of its total investment, divided by the number of bags of productive capacity. It is necessary, when studies of this nature are made, to determine first the size of the bag used by the company before its production statistics are of any value. Cuban raw sugar is generally shipped in bags of 320 pounds, seven bags making a long ton of 2,240 pounds. Puerto Rican sugar is generally shipped in bags of 250 and 310 pounds, the latter size being used by most of the large companies. Hawaiian sugar is shipped in 125-pound bags, Philippine sugar in 125- and 150-pound bags, and American beet sugar (all refined) is packed in bags of 100 pounds each. If one is comparing a group of Cuban companies or a group of Puerto Rican companies, it is possible to use the per bag basis without adjustment, provided that all companies within the group use the same size bags for shipment. When one is comparing Cuban companies with Puerto Rican companies, on the other hand, it is often safer to reduce all statistics to the basis of 100 pounds production capacity.

In reducing capitalization and operating statistics to a per bag or per pound basis, one again derives a common denominator or unit of comparison. There is a certain similarity of conditions throughout the industry in a given area that justifies this method, although here the most convenient denominator is a unit of productive capacity, as the spindle was in the cotton industry.

Wherever an industry operates under more or less uniform conditions—that is, where operating conditions are sufficiently similar to permit the use of some common denominator, such as the spindle in the cotton industry, the per bag productive capacity in the sugar industry, the per ton productive capacity in the steel industry, or the per pound unit in the copper industry—it is desirable to carry investigation beyond the scope outlined in connection with the financial analysis card.¹⁴ Where various statistics are worked out on the basis of some common denominator, a more precise study of values can be made than is possible from a purely financial analysis.

Summary. While an almost unlimited amount of time can be spent on the study of a corporation, especially if a field survey is warranted in order to check upon such matters as management, trade connections, labor relations, and consumer acceptance of products, the typical investment analysis is limited to the more generally available financial material. A review of the points to be covered might be outlined as follows:

1. *Strength of financial position.* This point is covered chiefly by a study of assets in their relation to debts as reflected in the balance sheet. The current ratio is used to check ability to pay shortly maturing liabilities. The capital structure proportions (preferably with intangible assets eliminated), the ratio of working capital to bonds, and the ratio of long-term debt to the market value of the succeeding net worth taken at market value are all intended to weigh the asset support for indebtedness.

2. *Earnings position.* The income of the corporation is studied in relation to the fixed and contingent charges and to the invested capital. The points of major interest are (a) adequacy in relation to charges, (b) stability, and (c) trend. Growth, as shown by rising earnings and increasing book value for the common stock, is especially desired because it bolsters the quality of the senior issues and raises hopes for common stock appreciation.

Under this heading, expansion would be most likely in a more detailed analysis. Depreciation allowances would be compared with gross plant and with sales. Repairs and maintenance, if

¹⁴ It is interesting to compare a statement on this unit basis with other material given earlier in this chapter: "The most efficient producers among the larger steel companies in 1940 were headed by Inland Steel, which made a net profit of \$4.38 per ton on its new capacity of 3,300,000 tons. It was followed by National Steel, with \$3.43 per ton; Youngstown, \$3.10 per ton; Republic, \$2.64; and Jones & Laughlin, \$2.60 per ton." *Barron's*, Feb. 10, 1941.

reported, would be given similar attention. The accumulated depreciation and depletion reserves would be compared with the total fixed property. The object is to detect an excessive or inadequate statement of expense at this point and so a misstatement of earnings. This item is usually of far more importance in the utility field than among industrials.

3. *Efficiency of operations.* Here intercompany comparisons are common, although differences in the character of companies often exist within the industry. The operating ratio, or its complementary ratio of net income left for the payment of capital to sales, is examined. The more slender the margin of earnings, the easier it is for a slight adverse change to reduce seriously or wipe out the net income. The efficiency with which capital is employed is checked by comparisons of plant, inventory, and sometimes receivables and total operating assets, with the annual sales. Apparently excessive investment in certain assets may betray doubtful or valueless items. Here also would be studied the return on non-operating assets if they were of sufficient importance.

4. *Reasonable price.* The last, but by no means least, consideration is whether the market price is reasonable in relation to the income offered and the investment quality. In the case of common stock, the chief items reviewed are price, earnings, and dividends. These have to be read in the light of the many intangible conditioning factors and the hopes of the future. Clearly, the statistical summary offered here is but an outline approach which is most useful when supported by a wide knowledge of the industry and of the tendencies in the economic world that will shape the income that is to come.

Public Utilities—General

Inadequacy of customary grouping of investments. The customary grouping of investments into the four distinct classes—government and municipal, railroad, public utility, and industrial—is not entirely logical, even though custom and usage recommend its adoption. Railroads, for instance, are no less a public utility than electric light and power, gas, and electric railway companies, yet a separate classification is given to steam roads. Furthermore, the term “public utilities,” as now used, includes such diverse industries as the electric light and power, artificial and natural gas, telephone and telegraph, private water companies, and electric (street and interurban) railways. From the standpoint of investment, there are wide differences among these groups. Investments in electric light and power operating companies as a class warrant a high rating at the present time (1941), in view of their depression record, although they are currently threatened by inflation and hostile political activity. The securities of electric railway companies, however, are of a decidedly low standing. One cannot, therefore, be content with the statement that all public utility investments are desirable.¹

¹ Some idea of the relative investment importance of certain public utility industries may be gained from the following estimates of total plant investment in 1937 in the industries specified:

Light and Power Companies (Commercial)	\$11,936,000,000
Telephone Companies	5,000,000,000
Street Railway Companies (1932)	4,268,000,000
Manufactured Gas Companies	1,990,000,000
Natural Gas Companies	2,300,000,000
Telegraph Companies	507,000,000

Moody's Manual of Investments: Public Utility Securities (New York: Moody's Investors Service, 1940, p. a3.

Common characteristics of public utility enterprises: public control. Despite the apparent dissimilarity among various public utility industries, there are certain points of similarity. This statement applies to the steam railroad as well as to those businesses that are spoken of as strictly utilities. The common characteristics may be grouped under four headings:

1. The concerns perform a particularly important service. In legal cases they are spoken of as businesses "affected with a public interest." While it is true that all business is charged in some way or other with a public interest, it is felt that so-called utilities supply commodities or services that are closely associated with the public welfare.²

2. They operate under conditions that tend toward monopoly. This tendency may be due to the economic law of increasing returns, or to the excessive cost of duplicating plant and equipment.

3. They enjoy special legal privileges. (a) They often operate under franchises that give them the right to use public highways. (b) They are accorded the benefits of the state's right to acquire property under eminent domain.

4. Finally, they perform services that are sometimes recognized as the functions of government. (Consider, for example, the furnishing of water to a community.)

An important corollary to be noted here is that public utilities are subject to regulation. Such regulation is exercised through the common law, by franchise restrictions, and by legislative enactment, as well as through positive control by means of administrative commissions.³ It is this fact as much as any other that

²The legal distinction between property devoted to public, as opposed to private, use has long been made in common law. A clear enunciation of this distinction is found in the opinion of the Supreme Court in the case of *Munn v. Illinois*, in which the right of the state to establish the charges that a grain elevator could make was upheld. An excerpt from the decision follows: "... we find that when private property is 'affected with a public interest, it ceases to be *juris privati* only.' . . . Private property does become clothed with a public interest when used in a manner to make it of public consequence, and affect the community at large. When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created." *Munn v. Illinois*, (1876) 94 U. S. 113.

³There are different theories as to the basis for such legal control. These theories fall into the following groups:

- a. The right to control inheres in the public because of the governmental character of the service rendered.

differentiates public utility and railroad investments from those of so-called private corporations. Therefore, it is important for the investor to consider at some length the nature of the control exercised over public utility companies, particularly in so far as such regulation affects his problem.

The franchise explained. Public utility companies almost invariably operate under a franchise. A franchise is a contract between the public and a corporation. In it are set forth the special privileges accorded the company in respect to the right to use public property, the right to acquire property under eminent domain, assurance that no other companies will be granted similar rights, and the length of time for which the franchise runs.⁴ The corporation, on the other hand, agrees to maintain regular service in the interest of the public, frequently agrees to make certain payments for the use of public property, and, in general, accepts its obligations as a public service enterprise.

The method of granting franchises to public utilities has undergone some change during the present century along with other aspects of public utility economics and regulation. Originally, through special enactment, legislatures granted to public service corporations the right to exist and to perform certain business. (These rights are now generally conveyed through a charter, sometimes referred to as "the general franchise.") Under the special enactments the public service corporation was also granted the right to use streets and highways, to erect poles, to lay gas mains, and so on. (These latter rights are now conveyed through the special franchise, usually referred to as "the franchise.") Somewhat later, general corporation laws were passed under which charters might be granted by state administrative agencies, whereas, for the most part, special franchises, which carried the right to use streets and highways, were placed within the jurisdiction of municipalities, either by general municipal corporation laws or by special municipal charters. In fact, many state constitutions now specifically provide that no franchise giving the use of streets and highways may be granted without the consent of local authorities.

b. The public acquires the right to control by virtue of the grant of special privileges.

c. The monopolistic character of the industry justifies public control as a means of protection.

⁴In view of the exclusive rights given to the utility company, it often agrees to maintain certain service standards and to extend its facilities to meet new demands.

As a result of the advent of effective commission control over utilities, the regulatory commission has, in many cases, been given the power of review over the acts of municipal bodies in granting franchise rights.

The conditions of the franchise under which a utility operates is of special significance to the investor. Quite naturally, one of the most important features of the contract pertains to the term of the franchise or the length of time it has to run. Many of the very early grants, which were secured through legislative acts, were without express limitation. In such cases the courts have held them to be perpetual.⁵ The same situation applies to many of the earlier municipal grants. In fact, where these earlier grants did run for a specific length of time, the period was very long—in many cases 99 or 999 years.

The experience of municipalities with these long grants was not entirely satisfactory, and public sentiment quickly changed. In fact, some state constitutions now prohibit perpetual grants, or else limit the life of all grants to a comparatively short period, say, from 25 to 50 years. These short-time grants, however, have proved highly unsatisfactory to utility companies and are particularly obnoxious to the investor. Public utility property is largely fixed and cannot easily be moved. The company is therefore at a decided disadvantage in the negotiations that take place at the expiration of the franchise. The company, except for the possibility of an appeal to the courts, is required to accept the terms offered by the city. What else can it do? It cannot profitably refuse to operate, nor can it close up and go out of business. In fact, city officials not infrequently have taken advantage of their strategic position and insisted on concessions so radical as to make future operations unprofitable.

The most satisfactory solution to the franchise situation that has been found is the so-called "terminable permit." The essential feature of this type of contract is the continuance of the grant, so long as the utility furnishes adequate service at reasonable rates, or until the municipality purchases the property under certain prearranged terms that give adequate protection to the investors of the company. Under such a form of contract the recurrent controversies over the terms of renewal are avoided, and new financing can be undertaken without the liability of loss.

⁵ *Re Denver Tramway Co.*, 3 Fed. (2d) 285; *Electric Railway Journal*, Dec. 20, 1924, p. 1057.

One of this form of grant has developed the so-called "service-at-cost franchise," which has been used more especially in connection with street railway companies.⁶ Under such franchises the terms are so arranged that charges for service are automatically adjusted in order that they shall meet as closely as possible the cost of services rendered, including operating expenses, all taxes, provision for permanent upkeep, cost of municipal supervision, and a return on the established value of the property. This method of adjustment avoids recurring litigation and expensive controversy before the commission when rates require change.

The operation of such a plan requires a proper valuation of the utility company, a definite understanding of what shall be included in expenses, the predetermination of a rate of return, and a provision for an automatic change of rate in the case of deficient earnings. Such a sliding fare arrangement is used by the Cleveland Railway Company. The Chicago Surface Lines, although enjoying no automatic adjustment of fares, operate under a franchise that provides for a 5 per cent return plus 45 per cent of all profits in excess of that rate, the surplus to be paid to the city. Any deficiency in the 5 per cent return becomes a claim against any excess over that return in subsequent years.

The state of Massachusetts has gone a step further in the Boston Elevated Act, by guaranteeing a specific return on property investments.⁷ This act authorizes increases in fares at stated intervals to provide for increased cost of service. However, if revenues during the interim are insufficient to meet the full cost of service, the trustees may call upon the state treasury for sufficient funds to meet the deficit. This deficit is then assessed against the cities served in proportion to their use of the service, and the commonwealth is reimbursed by any later surplus.

A provision is commonly included in service-at-cost franchises

⁶ The following companies operate under this type of franchise in one form or another:

Boston Elevated Railway Co.
Cincinnati Street Railway Co.
Cleveland Railway Co.
Dallas Railway & Terminal Co.
Montreal Tramways Co.
Sioux City Service Co.

⁷ See Chapter 288, "Special Acts of 1918," revised and extended May 31, 1931.

under which the municipality reserves the right to purchase the property at a price to be determined. Generally, this option becomes effective only after a certain number of years of private operation and is designed as a protection against continuously unsatisfactory operation. The price at which such a purchase may be made, or a basis for its determination, is usually specified in the contract. In this way the investor knows in advance what he may expect to receive, in the event of a purchase, and can govern his actions accordingly.

When purchasing public utility stocks and bonds, it is, of course, necessary to ascertain the franchise conditions under which the utility company operates. Companies that operate under short-term franchises present a real investment risk and should be avoided, unless it is known that the local officials and population are well disposed toward the company. Likewise, corporations operating under terminable franchises in localities that are likely to insist on unreasonable performances are not entirely satisfactory as investment media. The most satisfactory situation from an investment standpoint is a company operating under a long-term or an indeterminate franchise which grants the existing corporation a monopoly in the territory, and which provides for either the service-at-cost principle in the matter of rates or enjoys regulation that achieves that result.⁸ A record of enlightened and equitable commission control, which recognizes both the consumers' and the investors' interests, is a valuable thing.

Control of monopolistic tendencies of public utilities. In the earlier period of public utility development, competition was relied upon as the best protection against excessive rates and inadequate service. Duplicate telephone systems, electric light plants, and gas companies were stimulated by the ease with which franchises could be secured from local legislative bodies and capital could be obtained from the community.⁹ During

⁸ For further material on franchises, see Jones, Eliot, and Bigham, T. C., *Principles of Public Utilities* (New York: The Macmillan Co., 1931), pp. 102-156; Mosher, W. E., and Crawford, F. G., *Public Utility Regulation* (New York: Harper and Bros., 1933), pp. 93-117; Nash, L. R. *The Economics of Public Utilities* (New York: McGraw-Hill Book Co., 2d ed., 1931), Chapter III.

⁹ The history of public utility enterprises has been referred to as comprising the eras of: (1) invention; (2) exploitation; and (3) regulation. See Freeman, W. W., "Evolution of Public Utilities," *Annual Report, Investments Bankers' Association*, 1916. The era of competition coincided with that of exploitation. Gradually competition proved inadequate as a regulator for the industry, and regulation was substituted.

this period the relations that the utility companies bore to the community were not regarded as sufficiently different from those of private economic enterprises to require a different attitude, either on the part of the *entrepreneur* or of the public. *Entrepreneurs* and promoters felt that they were entitled to organize, to capitalize, and to run their businesses in the manner that best served their own interests, and to make such profits as they could. It was generally felt that the hazards involved in the business were no more than offset by the chances of profit.

The economic law of increasing returns, however, operates in the public utility field with greater force than in many other industries. One electric railway company can serve a community at a lower aggregate cost than can several, and with much better results. Great economic waste results from the operation of two sets of gas mains and two plants in a given community, or two electric lighting systems. Even in the telephone industry, where large-scale operation does not necessarily reduce unit costs, one must consider the waste of duplicating facilities. In general, one may safely say that it is uneconomical to duplicate a given plant, such as electric light and power, gas, or railway, until the existing plant is able to operate at maximum capacity. The same applies, of course, to the steam railroad industry. Until one road is able to operate at maximum capacity, a second road results in a loss of capital.

The entire matter may be restated in a somewhat different way. Let two utility companies operate in the same territory without regulation, and cutthroat competition, consolidation, or a pooling of interests results within a very short time. In the event that consolidation or a pooling of interests does not result first, cutthroat competition occurs. The reason for this is the operation of the so-called law of increasing returns. Where two companies are operating in a community, it generally happens that neither plant can operate at maximum capacity. This means that either plant can take on additional business so long as operating costs alone are met and a small contribution is made toward indirect costs. After the original investment has been made in an enterprise—say, an electric light plant—indirect costs continue, quite irrespective of the amount of business done. If such a plant is operating at, say, one-half or two-thirds capacity, it is possible to take on additional business at a price for service that little more than covers the out-of-pocket expenses incurred in furnishing such service. It is true that all its business could

not be handled at such prices, since otherwise revenue would be inadequate to meet total cost, including overhead. Yet it is also true that at any time *additional service* can be so priced. Thus, where two plants exist, both competing in a given area and neither operating at capacity, there is a strong incentive for each to seek additional business at a price slightly below the prevailing rate. The other company is then forced to meet this price, and eventually the lower price becomes the prevailing one. Sooner or later one of the companies goes out of business, and consolidation results, or a pooling of interests is effected. Actual competition, where it is maintained for any length of time, becomes a fight to the finish.

Thus, while competition originally appeared to offer protection to the public, it soon proved inadequate. For, once the surviving company had acquired the competing facilities, it proceeded, quite naturally, to collect from the public a return on its total capital outlay, including the cost of acquiring the duplicate properties. In this way, the public, sooner or later, was made to absorb the burden of the uneconomical construction program that was originally sponsored as a protection against exorbitant rates. It is impossible, therefore, to rely on the ordinary forces of competition to regulate rates and service. The only alternative is some sort of public control by which the public may be protected against inadequate service or unreasonable rates. The courts, therefore, have universally upheld the old common law principle that public service enterprises are subject to public control in the operation of their business.

Public utilities and the right to judicial review. There is, of course, another side to the entire question of regulation. What protection have the utilities against inadequate rates? What is to prevent the legislative or administrative body, charged with regulation, from establishing rates that are unremunerative to the company and fail to yield to the owners of the business a return on their investment? There was a time, in fact, when the courts refused to offer any protection to the company in this respect, holding that the power to fix rates was a legislative rather than a judicial prerogative and that relief should be sought from the legislature, not from the courts.¹⁰

¹⁰ This doctrine was laid down in the case of *Munn v. Illinois*, (1876) 94 U. S. 113. In commenting on the power of the legislature to control rates, the court here held: "We know that this is a power which may be abused; but that is no argument against its existence. For protection against abuses by legislatures the people must resort to the polls, not the courts."

This attitude, however, could not long persist. As our industrial development continued and as legislative interference became more burdensome, the Supreme Court was required to hear a number of cases in which it was claimed that the rates established by the legislative bodies were so low as to destroy the value of the property used in the interest of the public. The utility companies and the railroads contended that such rates were unconstitutional, in that they deprived the owners of their property without due process of law.¹¹ Gradually the Supreme Court reversed its previous position and, by 1896, clearly took the position that, while the legislature had the power in the first instance to regulate rates and service, the utility company, or railroad, had the right to apply to the courts for a judicial review of the rates so established.¹² As the matter now stands, therefore, the legislative branch of our government has regulatory powers over all industries "affected with a public interest," while the courts stand ready to offer protection against the abuse of such powers.

To whom the legislative power of control has been delegated. While the power to regulate public enterprises, in theory rests with the legislatures, the application of regulatory policy, legislatively determined, is usually delegated to an administrative commission. The Interstate Commerce Commission, which is a Federal body, has jurisdiction over all railroads engaged in interstate commerce, all pipe line, express, and sleeping-car companies, in respect to interstate business, and all electric railways engaged in interstate commerce. In 1934, the Federal Communications Commission was created to regulate the telephone, telegraph, and radio industries, and in 1935 the Federal Power Commission was given control over the interstate electric power business. In addition to this Federal control, there are state utilities commissions which generally regulate electric light and power, gas, electric railway, local telephone and telegraph, and

¹¹ The fourteenth amendment to the Constitution of the United States reads in part as follows: "... nor shall any state deprive any person of life, liberty, or property, without due process of law; nor deny any person within its jurisdiction the equal protection of the laws."

¹² "While rates for the transportation of persons and property within the limits of a State are primarily for its determination, the question whether they are so unreasonably low as to deprive the carrier of its property without such compensation as the Constitution secures, and therefore without due process of law, cannot be so conclusively determined by the legislature of the State or by regulations adopted under its authority, that the matter may not become the subject of judicial inquiry." *Smyth v. Ames*, 169 U. S. 466.

private water companies, and other local utilities operating within a single state. At the present time (1941) every state but Delaware has some form of utilities commission.¹³

Attitude of commissions toward companies. In the early history of public utility regulation, state legislatures, as well as the various commissions, were primarily interested in the protection of the public against certain abuses, particularly against discrimination and unreasonably high rates. There was little or no concern on the part of commissions for the position of the investor in public utility securities. The latter's protection always lay in a protest to the courts when legislative interference became burdensome. Subsequently, however, a more moderate attitude has developed, and generally both commissions and courts have come to recognize the desirability of fair treatment for the utility company as well as for the public.

Regulation of rates. Among the more fundamental problems that have confronted both the commissions and the courts in connection with utility regulation have been those of rate making and valuation. These two problems are closely associated, for the entire question of fair rates involves a determination of the value of the property used in the interest of the public. A fair rate is one that will allow a proper return on the fair value of the property employed for the public benefit. It became necessary, therefore, to establish a proper basis for appraisal just as soon as the courts stood ready to protect the utility companies against confiscation. The valuation problem has thus assumed an aspect of considerable importance not only to the public but also to the investor in public utility enterprises, since the particular valuation allowed is one of the determinants of the rates that shall be permitted, and therefore of the earning power of the concern itself.¹⁴

Peculiar aspects of public utility valuation. It is evident that the method of appraisal used in the valuation of public utility properties for rate purposes must differ from that used in the appraisal of the property of industrials. In the former case, it

¹³For a detailed chart showing regulatory bodies and their jurisdiction and powers, see p. 376. The District of Columbia, which has a commission, is also included in the chart.

¹⁴For a good treatment of the valuation problem in connection with public utilities, see Bauer, John, and Gold, N., *Public Utility Valuation for Purposes of Rate Control* (New York: The Macmillan Co., 1934). A more exhaustive treatise is that of Whitten, R. H., and Wilcox, D. F., *Valuation of Public Service Corporations* (New York: Banks Law Publishing Co., 2d ed., 1928).

is impossible to give much, if any, weight to market value, for market value is dependent to a large extent on earning power, which in turn varies with the rates allowed. If, therefore, market values were used as the basis for determining the rates a public utility should be allowed to charge, we should really be begging the entire question, since market value itself depends largely on the very rates it is desired to test.

For this reason it is necessary to use a different basis for valuing public utility property for rate-making purposes. The two bases now most commonly used are: actual, or original, cost of construction; and cost of reproduction (or reproduction cost, as we shall use the term). The term "actual," or "original," cost is generally employed to include the original cost of the property used for utility purposes (including an allowance for working capital as well as fixed property), with the cost of subsequent additions and betterments added, and retirements and abandoned property deducted. From this sum an allowance for depreciation will be subtracted. Minor variations of this general practice are sometimes advocated. Advocates of cost usually agree that extravagant or unnecessary expenditures should not be included in the valuation, and adopt a standard which they term "prudent investment." It may be argued that retired property may be carried for a time as a part of investment until written off out of earnings, or that the depreciation allowances should not be deducted in computing the valuation. The term "reproduction cost" may also be employed either to designate the cost of reproducing the property new, that is, without depreciation; or to designate the cost of reproducing the property in its present depreciated condition. The claims made for and against these different bases of valuation will be considered in some detail.

Methods of valuation: original, or actual, cost basis. The merit of the original, or actual, cost basis lies in the fact that it represents, as nearly as possible, the actual sacrifice of the investors. After all, is this not the real amount on which a fair return should be allowed? Can the courts or commissions be called upon to go further than this in giving protection to the investor?

It is true that original cost as a basis for determining the fair value of utility property for rate-making purposes has much to commend it. On the other hand, it is not without weaknesses. The first difficulty arises from the fact that it takes no cognizance of fluctuating values. The first two decades of the century wit-

nessed a very substantial increase in the general price level. Is a company that was established during that period to be allowed a return on the basis of construction costs at that time? Such a situation would undoubtedly prejudice some investors against the industry if prices were rising, even though the constant replacement that normally goes on tends to correct matters. It would also result in widely different rates for the same type of service, depending upon costs at the time a particular plant was erected.

Another possible objection to original cost may lie in the practical difficulties of applying it. It sometimes happens that the accounting records of a company are lost or that they are inadequate. Occasionally repairs and maintenance expenditures are not properly differentiated from additions and betterments. When the present company is made up of a number of smaller subsidiaries, the situation may be even more involved. In other words, even where it is desirable to use actual, or original, cost, it may be impossible to do so, although this difficulty becomes less important when the accounts have been kept over a period of years on a uniform basis and under the supervision of a reasonably vigilant commission. Where doubt exists as to the accuracy of records, a condition that prevailed more commonly prior to the first World War, valuation has often been necessary to provide a starting point. It is easier from an administrative point of view to arrive at and agree upon a valuation based upon costs determined by carefully kept accounting records than upon frequent revaluations made upon the basis of changing reproduction cost.¹⁵

¹⁵ The following citations pertain to the use of actual cost for rate-making purposes:

Cumberland Tel. and Tel. v. City of Louisville, 187 Fed. 637. Realized difficulties of determining actual cost.

Ames v. Union Pacific Ry. Co., 64 Fed. 165, "Actual investment is not to be ignored even though such sum is far in excess of the present value."

Actual cost strongly upheld in San Diego Water Co. v. San Diego, 118 Cal. 556, 50 Pac. 633; Brymer v. Butler Water Co., 179 Pa. 231, 36 Atl. 249.

Coal & Coke Railway Co. v. Conley, 67 W. Va. 129, 67 S. E. 613.

The Wisconsin Railroad Commission, while holding that there is no single standard of valuation, has based the element of going value largely on an estimate of the actual cost of establishing the business. City of Appleton v. Appleton Water Works Co., 5 W. R. C. R. 215. See particularly p. 219.

Actual cost upheld by New York Public Service Commission in Mayhew v. Kings County Lighting Co., 2 N. Y. P. S. C. (1st Dist.), Oct. 20, 1911. Actual cost also upheld by Pub. Serv. Comm. of N. H., annual report, 1912, p. 302.

The injustice of basing fair value on cost of reproduction is pointed out by the Interstate Commerce Commission in "Advances in Rates, Western Case," 20 I. C. C. R. 307. "Perhaps the nearest approximation to the fair standards is

Reproduction cost defined. As a result of this situation and of the difficulties of ascertaining actual cost, we have a different concept of value based on cost of reproduction. The term has generally been used to imply the cost of reproducing the property new on the basis of current prices, or on the basis of averaging prices over a period of, say, five years. The plant under consideration is usually assumed to be reconstructed from materials and equipment in every respect the same as those used in the construction of the actual plant, although under certain conditions it is necessary to consider the cost of erecting a substitute plant of similar capacity, the so-called "replacement cost basis."¹⁶

During the period preceding 1910, various commissions urged the use of the cost-of-reproduction basis on the grounds that the public was entitled to enjoy the benefits of lowered costs, and

that of bona fide investment—the sacrifice made by owners of the property—considering as a part of the investment any shortage of return that there may be in the early years of the enterprise."

As one might expect, the public service corporations during the decade after the first World War were especially vigorous in upholding reproduction cost and have, no doubt, greatly exaggerated the difficulties of original actual cost. See brief of C. E. Smith in *Lincoln v. Lincoln Water & Light Co.*, I. P. U. C. No. 2406, p. 65; Senate Report No. 1290 of the 62d Congress, p. 54; remarks of President Hadley before Senate Committee; report, 3d session 62d Congress, p. 236. However, some evidence of the difficulties in ascertaining original cost is indicated in the case of the New York Public Service Commission's opinion-re *Westchester Lighting Company*. The books of the Company were found not to reflect original cost less depreciation "In order to determine these and other necessary factors, 66 hearings have been held since the adoption of the order, over 7,000 pages of testimony have been marked for identification, of which 146 were received in evidence." (15 P. U. R. 299, 1936, p. 302).

Recent decisions upholding actual cost: *Re Cripple Creek Water Co.*, P. U. R. 1916-C, 788; *Public Service Comm. v. Pacific Tel. & Tel. Co.*, (Wash.) P. U. R. 1916-D, 947; *Butler v. Lewiston, A. & W. St. Ry. Co.*, (Me.) P. U. R. 1916-D, 25.

See also *Des Moines Gas Company v. City of Des Moines*, 238 U. S. 153, 168; *Lincoln Gas & Electric Co. v. Lincoln*, 250 U. S. 256, 268; *Missouri ex rel. Southwestern Bell Tel. Co. v. Public Serv. Comm.*, 262 U. S. 276; *The Pacific Telephone and Telegraph Co. v. Whitecomb, et al.*, 12 Fed. (2d) 279; *Consolidated Gas Co. of N. Y. v. Prendergast, et al.*, 6 Fed. (2d) 243; *Columbus Gas Light Co. v. Corporation Commission, (Ind.)* 140 N. E. 538; *People ex rel. Adirondack Power & Light Co. v. Public Service Commission*, 207 N. Y. S. 284.

See also other citations in this chapter.

¹⁶In Hartman, H. H., *Fair Value* (Boston: Houghton Mifflin Co., 1920), p. 100, cost of reproduction theories are classified as follows: (1) the cost of reproducing a plant, similar in all essentials to the existing plant, under present conditions; (2) the cost of reproducing a similar plant at present prices, under conditions prevailing at the time of original construction; (3) the cost of constructing a substitute plant capable of performing the same service. 'Cost-of-reproduction-new—less depreciation,' sometimes spoken of as a fourth form of the theory, is but the application of depreciation rules to the inventory."

that charges for service should be based on existing and not past costs. Between 1910 and 1930, however, the situation was reversed, and the public service corporations strongly urged the use of the cost of reproduction basis for valuation. The reaction of prices and their violent fluctuations after 1930 have left the companies less assured in their arguments and more willing to accept the certainties of original cost. Those companies which constructed the bulk of their property during the 1920's would currently (1941) find original cost higher than reproduction cost although moderate inflation could easily reverse the situation.

Arguments for and against reproduction-cost theory. In general, the arguments in favor of cost of reproduction are based on the claim that the public is entitled to service at a rate of charge sufficient to pay a fair return on the investment currently necessary to furnish the service; while the company is entitled to a fair return on the capital investment that another company would have to make under current conditions to provide the service.

Undoubtedly there are reasons for considering fluctuations in value under certain conditions, but the logical outcome of a strict application of the cost-of-reproduction theory would inevitably result in an unearned, or unmerited, gain or loss either to the consumer or to the investor. This situation should definitely be avoided, so far as possible, in rate cases. The ultimate desideratum in public utility valuation is a rate that allows a fair return to the investor on the sum invested and a fair rate to the consumer, based on the original cost of erecting the property. If the investor is to be protected, therefore, against declining prices, why should the consumer not be protected against increasing values, especially where the increase in property values may be largely conjunctural, developing out of the normal growth of the community?¹⁷

Opposed to this argument, of course, is the argument based on the decline in the purchasing power of money caused by rising prices. To limit the return on public service property, say, to

¹⁷ *Re Franklin Light & Power Co., (N. H.) P. U. R. 1922-A*: "It would seem unreasonable to mark up or down the valuation of all of our electric and other plants to correspond to the fluctuations in the cost of materials and labor, especially in such abnormal times as these. A permanent change in values may fairly be considered, but there is a pretty general feeling that money prudently invested should be reasonably secured against sudden or other reductions in values, and of course it would be equally objectionable to raise values to match fluctuations in cost of material and construction" (p. 514).

1913 prices, would be to fail to maintain a *status quo* for the investor in such property if his investment were figured in terms of commodities. The more fortunate investor who committed his capital to industrial securities, on the other hand, would find himself in a far more favorable position, in that he would be able to profit from an increase in property values. However, in so far as the rate of return and the principal of bonds and preferred stocks are fixed in nearly all cases, this argument applies only to the common stockholder. The reproduction-cost basis would, in a period of rising prices, offer no aid to the bondholder and preferred stockholder suffering from diminishing purchasing power, but would return large gains to the common stockholder, especially when his equity was small in relation to the appreciating property. In a period of falling prices, the common stockholder might be completely wiped out and the investment position of the prior securities would be injured, if not actually placed in jeopardy of default.

One must also consider the public's need for extensions in public utility enterprises. The funds for extensions and expansion must ultimately come from the investor. Consequently, if the public utility commission denies the right to any unearned increment, funds are liable to be diverted to other enterprises in which the investor is not similarly restricted.

Depreciation in connection with reproduction cost. In considering the cost-of-reproduction theory, we cannot neglect the problem of depreciation. There are, in fact, two distinct lines of thought as to the proper method of handling depreciation. One group advocates a strict application of the cost-of-reproduction-new basis without any allowance for depreciation. This group holds the theory that, so long as the service performed by the utility is as good as when the utility was new, it is immaterial to the consumer to what extent depreciation of individual property has occurred.¹⁸

¹⁸ One of the advocates of the cost-to-reproduce basis was A. C. Humphreys, former president of Stevens Institute of Technology. See "Depreciation, Estimated and Actual," *Proceedings of the American Gas Institute*, Vol. VIII, Part II, p. 521; Blood, W. H., "The Passing of 'Depreciated Value' in Rate Bases"; and Webster, Geo. N., *Theoretical Depreciation, a Menace to the Public and the Investor*. The cost-of-reproduction-less-depreciation theory has been upheld by Whitten, Robert H., in *Valuation of Public Service Corporations* (New York: Banks Law Publishing Co., 1912), Vol. 1, p. 359; and by a special committee of the American Society of Civil Engineers in a report of the Special Committee to Formulate Principles and Methods for the Valuation of Railroad Property and Other Public Utilities, Dec. 1, 1913, p. 49.

The essential difficulty regarding the question of depreciation centers on the way in which depreciation is handled. Where depreciation is not provided for, but is returned to stockholders in the form of excessive earnings, the depreciated value of the property should be taken as the rate base.

It may be true, as those advocating cost-of-reproduction-new suggest, that so long as service is efficient, the public is not concerned; but eventually repairs and replacements will become necessary, and whence are the funds to come? Earnings, once paid out, will not be returned. The only alternative is to raise such funds by new capital issues.

But when depreciation is properly charged against earnings and the depreciation is properly handled, we have a different situation. The meaning of the term depreciation is clear: it is a recognition of the imperceptible, immeasurable decline in value that sets in at the time of purchase and continues until the capital instrument is retired to the inevitable scrap heap. To be sure, there may be no appreciable lessening of its efficiency until, say, the tenth year of its existence, when, suddenly, it becomes worthless. Nevertheless, in performing its service during these ten years, it has been yielding up value to the goods or services produced, and against its income should be charged yearly amounts, so that at the end of ten years we shall have a fund equivalent to the original investment, less whatever scrap value exists after the instrument is abandoned.

As applied to a public service plant, the propriety of charging depreciation against earnings is no longer questioned. This statement is merely another way of saying that the consumer is expected to pay a sufficient amount, assuming a fair return is earned over expenses, to return the value of property used up in providing the service rendered. When such investment is paid for by the consumer, he should no longer be expected to pay a return upon it. But if, as is usually the case, the funds representing depreciation reserves have been turned back into the plant as additions and betterments, then these funds should be added to the depreciated value of the original plant, in order that they may continue earning a return for the investors in the company.¹⁰ The funds represented by the depreciation allow-

¹⁰For an able discussion of this problem from an economic standpoint see Adams, J. P., "Depreciation in Relation to Public Utility Valuation," *Papers and Proceedings of American Association of University Instructors in Accounting*,

ance may, however, be invested in other nonoperating property, so that they may earn an independent return or be used to retire outstanding securities of the operating company.

Present attitude toward reproduction cost. Regardless of whether or not depreciation is considered in arriving at values based on reproduction costs, it is apparent that a fundamental distinction exists between reproduction values and actual cost. The arguments for and against these two theories have previously been set forth, and we are again brought to a realization that neither method has been generally accepted as a sole criterion of value, despite an attempt on the part of attorneys representing public service corporations to interpret the *Smyth v. Ames* case to mean that "present value" should be taken as the only value.

The language of the court on this point in *Smyth v. Ames*, already quoted, was as follows: "And, in order to ascertain that value [fair value for property used for the convenience of the public], the *original cost of construction*, the amount expended in permanent improvements, the amount and market value of its bonds and stocks, the *present as compared with the original cost of construction*, . . . are all matters for consideration. . . ."²⁰ Lest anything might have been overlooked, the court

1922, Vol. VII, p. 99. The following citations will indicate the attitude of the courts and some commissions on the question:

Report of the Massachusetts Joint Commission on the N. Y., N. H. & H. Ry. Co., Feb. 15, 1911, pp. 51-154. Upholds cost-of-reproduction-new, so long as property is maintained at 100 per cent capacity out of earnings or stock assessments.

City of Whitewater v. Whitewater Electric Light Co., 6 W. R. C. R. 132, 138. Commission upholds cost-of-reproduction-new "... since although the investment may apparently be diminished by failure to provide for depreciation and by the payment of this money to stockholders, in reality the investment is not diminished, because of the necessity of replacing the plant, in the absence of a depreciation fund, from the property of owners or stockholders."

Knoxville v. Knoxville Water Co., 212 U. S. 1, 29 Sup. Ct. 143, 53 L. Ed. 371. The Supreme Court here holds cost-of-reproduction-less-depreciation to be the controlling factor.

Minnesota Rate Cases, 230 U. S. 352. Upheld cost-of-reproduction-less-depreciation. Supreme Court rejected contention that increase in value due to adaptation and solidification of roadbed was more than adequate fully to offset all depreciation in physical structures, indicating that appreciation and depreciation should be estimated separately. Additional citations in Whitten, Robert H., and Wilcox, D. F., *Valuation of Public Service Corporations* (New York: Banks Law Publishing Co., 2d ed., 1928), Chapters XIV and XV. See also Bauer, John, and Gold, N., *Public Utility Valuation for Purposes of Rate Control* (New York: The Macmillan Co., 1934).

²⁰ The italics are ours.

added: "We do not say that there may not be other matters to be regarded in estimating the value of the property."

It appears here that the court provided for the use of both original cost and present, or reproduction, cost. For, while it is true that in some instances the courts have held strictly to original cost,²¹ and in other cases they have leaned essentially toward reproduction costs,²² the recent tendency has been to permit state commissioners to follow what seems to be their common bent in minimizing the importance of reproduction cost, or even omitting it, in favor of original cost.²³

Treatment of certain tangible and intangible items in utility valuation. Up to this point, our discussion has centered on the

²¹ See citations on p. 359.

²² See *In re San José Water Co.*, (Cal.) P. U. R. 1915-E, 706; *In re Terminal Taxicab Co.*, (D. C.) P. U. R. 1915-B, 546; *In re Bronx Gas & Elec. Co.*, (N. Y., 1st Dist.) P. U. R. 1916-A, 440; *Steenerson v. Great Northern Ry. Co.*, 69 Minn. 353.

²³ New Hampshire Public Service Commission, report of Nov. 30, 1912, p. 302. Upholds amount honestly invested as fair basis of value. Wisconsin Railroad Comm. accepts investment idea in *Appleton v. Appleton Water Works Co.*, 5 W. R. C. R. 215, although it gives consideration to reproduction cost. Massachusetts Public Service Commission accepts original value. *In re Middlesex & Boston Rate Case*, Oct. 28, 1914. *In re Dunham*, (Mo.) P. U. R. 1916-E, 544, decision in *Smyth v. Ames* literally construed. See also *In re Muirco Ind. Tel. Co.*, (Neb.) P. U. R. 1917-E, 471; *In re Lincoln v. Lincoln Water & Light Co.*, (Ill.) P. U. R. 1917-B, 1. *Sanjson v. Shepard*, 230 U. S. 352, 33 Sup. Ct. 729. "The cost-of-reproduction method is of service in ascertaining the present value of the plant, when it is reasonably applied and when the cost of reproducing the property may be ascertained with a proper degree of certainty. But it does not justify the acceptance of results which depend upon mere conjecture." *People ex rel. N. Y. State Rys. v. Public Service Comm.*, (App. Div.) 195 N. Y. S. 174. Holds that neither "cost before the war" (first World War) nor "reproduction (cost) at the present time" is a fair basis, but that the present value must be "something more than prewar cost less depreciation." *City of Stamford v. Stamford Gas & Electric Co.*, (Conn.) P. U. R. 1922-A, 303. Favors an average reproduction cost. *In re Franklin Light & Power Co.*, (N. H.) P. U. R. 1922-A, 506. Gives consideration to depreciated value and original cost.

Adherence to a single basis is not clear-cut, even in Supreme Court cases. Bauer and Gold emphasize the importance of surrounding circumstances. Of particular interest is the case of the Los Angeles Gas and Electric Corporation v. Railroad Commission of California (239 U. S. 287, 1933), in which the Commission was permitted to lay primary emphasis upon historical (original) cost. Even more significantly, the same Commission, in a case involving the Pacific Gas & Electric Company (302 U. S. 388, 1937), was upheld by the Supreme Court, although the Commission had adhered to historical cost and refused to give any consideration to reproduction cost. The case is contrasted with the Indianapolis case (*McArdle v. Indianapolis Water Co.*, 272 U. S. 400), which was regarded as a clear victory by the supporters of reproduction cost. Consult Bauer, John and Gold, N., *Public Utility Valuation for Purposes of Rate Control* (New York: The Macmillan Co., 1934).

particular aspect of value that should be adopted. Still other problems must be settled, however, before any of the cost theories discussed can be used intelligently, and these questions hinge on the inclusion or exclusion of certain items in arriving at values.

While it is true that little doubt exists as to the propriety of including as elements of value those tangible items which were necessary to the public service corporation, and which were acquired at an actual cost, questions do arise as to the propriety of including other tangible items, as well as some intangible items, in arriving at the rate basis.

Unused property. For instance, it is generally held that property that is not used or is not useful, even though acquired at a cost, may not be included in arriving at values for rate-making purposes.²⁴ The theory underlying this attitude is that the public should not be required to pay rates high enough to provide a return on an unnecessary investment, or to recoup the public service company for mistakes in judgment.

Property acquired by gift. Essentially the same attitude has been taken in respect to tangible property acquired by gift and without cost. Such property, although necessary, represents no sacrifice, no investment, and no cost to the company until replacement is necessary. Consequently, such property should be excluded from the rate base.²⁵

Property acquired from surplus. Another interesting problem is created in respect to property acquired from surplus. Should such property be regarded as acquired from large earnings, and hence as representing no sacrifice from investors, or should it be considered as a reinvestment of the stockholders' earnings? The courts have generally held that, where earnings have arisen from exceptional management or from failure to declare dividends, and have not resulted from high rates, they represent a reinvestment and may be regarded as an item of cost.²⁶

²⁴ See particularly *In re LaCrosse Gas & Elec. Co.*, 8 W. R. C. R. 138; *In re Darlington Elec. Light & Water Power Co.*, 5 W. R. C. R. 397; *San Diego Land & Town Co. v. Jasper*, 189 U. S. 439, 23 Sup. Ct. 571, 47 L. Ed. 892.

²⁵ While some earlier decisions favored the inclusion of such items, later decisions have adopted an opposite view. See *San Diego Water Co. v. San Diego*, 118 Cal. 556, 50 Pac. 633; *Ashland v. Ashland Water Co.*, 4 W. R. C. R. 273; *Pine Lawn v. W. St. Louis Water & Light Co.*, (Mo.) P. U. R. 1917-B, 679.

²⁶ See *In re Bridgeport Natural Gas & Oil Co.*, (W. Va.) P. U. R. 1916-C, 253; *In re Salem Tel. Co.*, (S. Dak.) P. U. R. 1919-B, 734; *Mass. Bd. of Gas & Elec. Light Comm.*, 9th annual report, p. 90, *In re Haverhill Gas & Light Co.*

Land values. The question of land value has perhaps caused as much difficulty in railroad valuation cases as any one item, not because of any doubt regarding the validity of its inclusion, but rather as to the proper method of appraisal.²⁷ Here the difficulty hinges largely on the propriety of allowing for increases in the values of land because of community growth. In some instances, there has been a tendency to appraise land at its present market value, whereas in other cases a "fair value" of land may be less than the market value of similar land in the vicinity. The Interstate Commerce Commission endeavors to ascertain the present value of land by multiplying the number of acres of land owned or used by the carrier for its purposes as a carrier by the "present market value" per acre of "similar, adjacent and adjoining lands," with due allowance for the "peculiar adaptability of the land to railroad use."²⁸ In general, the use of "multipliers" to account for cost of acquiring land, or to account for added value given because of adaptability for use by the public service corporation, has been condemned.²⁹

Overhead costs. Other questions regarding the valuation of specific types of tangible property naturally arise, but our analysis has gone far enough to show that the courts and the commissions usually seek to include only those items that, on the one hand, actually represent an investment by the public service corporation and, on the other, are usually employed in the business.

Other questions of interest center on the inclusion or exclusion of such items as engineering costs, superintendence, contingencies, contractors' profits, interest during construction, legal and general organization expenses, and promotion costs. These items, ordinarily classed as overhead expenses, are generally allowed by state commissions, where it can be proved that they were actually incurred and where they were not excessive. Likewise, the additional expense involved because the utility company was necessarily constructed in piecemeal fashion may be regarded as a legitimate item of cost. Franchise values, on the other hand, while allowed in valuation for taxation, and frequently in valuation for purchase and sale, are not generally

²⁷ There are three generally accepted methods of land appraisals: the "local expert method; the sales method; and the appraisal method." See Hartman, H. H., *Fair Value* (Boston: Houghton Mifflin Co., 1920), p. 139. They apply, of course, only in the reproduction-cost and estimated original-cost inventories.

²⁸ Valuation Docket No. 2, pp. 52-62.

²⁹ Minnesota Rate Case, 230 U. S. 352, 33 Sup. Ct. 729.

considered in arriving at values for rate-making purposes beyond the actual cost of acquiring the franchises.³⁰

Going value. One more point remains to be discussed in reference to intangible items and their relation to value, and that is the question of "going value" or "going concern value." Utility companies have invariably contended that allowance should be made in regulatory valuation for a sum in addition to the mere physical value of the property to include a certain intangible element of value that is considered to exist because the concern is operating, has a clientele, and is actually running.³¹ There

³⁰ The following citations, while not complete, will indicate the courts' attitude on the treatment of intangible values:

City of Ripon v. Ripon Light & Water Co., 5 W. R. C. R. 1. Twelve per cent allowed on total inventory-reproduction cost to cover engineering, superintendence, legal expenses, interest during construction, and contingencies.

Cedar Rapids Gas Light Co. v. Cedar Rapids, 223 U. S. 655. The Iowa Supreme Court was upheld in denying an allowance either for promotion or organization.

In appraisal of Chicago surface railways, 1906, Chicago Consolidated Traction Co., 1910, and Chicago gas plant, 1911, allowances made for organization expenses. See report, Traction Valuation Commission, Dec. 10, 1906; August, 1910; report by Wm. T. Hagenah to Gas Sub-committee of Chicago Council Committee, April 17, 1911.

In appraisal of Cleveland street railways, 1909, 10 per cent added to total inventory value to cover organization, interest during construction, etc. Decision of U. S. Dist. Judge R. W. Taylor, *re* arbitration of valuation of property of Cleveland Ry. Co., Dec. 16 and 17, 1909.

Lincoln Gas & Electric Light Co., City of Lincoln, 182 Fed. 926, 928; 7.7 per cent inventory cost allowed.

New Jersey Pub. Util. Comm., 1911, allows 12 per cent. *Re* investigation of rates charged by Consolidated Gas Co. of Long Branch, N. J., July 25, 1911.

Mayhew v. Kings County Lighting Co., 2 N. Y. P. S. C. (1st Dist.), Oct. 20, 1911. Allows from 10 per cent to 15 per cent.

For complete citations of earlier cases see Whitten, Robert H., and Wilcox, D. F., *Valuation of Public Service Corporations*, (Banks Law Publishing Co., 2d ed., 1928). Chapters XXIII-XXIX.

Lincoln v. Lincoln Water & Light Co., I. P. U. C. No. 2496, P. U. R. 1917-B, 1. A list of typical overhead expenses suggested here.

Washington & M. R. Co., (D. C.) P. U. R. 1915-B, 558. Holds that allowance for overhead must be on depreciated value of property.

Edwards v. Glen Tel. Co., (N. Y. 2d Dist.) P. U. R. 1916-B, 940. Promoters' profits included in valuation only upon showing reasonable necessity thereof and resulting benefit to service.

Lincoln v. Lincoln Water & Light Co., (Ill.) P. U. R. 1917-B, 1. Interest during construction as a capital charge limited to reasonable amount.

Bond discount is not generally held to be a capital charge, but is regarded as an interest charge, to be absorbed through earnings. Potomac Elec. Power Co., (D. C.) P. U. R. 1917-D, 563. For additional citations on these points, see Whitten, Robert H., and Wilcox, D. F., *Valuation of Public Service Corporations* (Banks Law Publishing Co., 2d ed., 1928), Chapter XXIV.

³¹ Des Moines Gas Co. v. Des Moines, 238 U. S. 153, 35 Sup. Ct. Rep. 811.

are, in fact, several aspects of this question that must be treated differently, as going value is not always used to cover precisely the same thing.³²

Where going value is considered as arising from expenditures necessary to secure new business, such expenses, if actually incurred and charged to capital, may be included. But where such charges were not incurred, or were met out of operating expenses, obviously to include them in the rate base would be tantamount to duplicating the charge against future consumers.

Another use of the term "going value" implies the difference between exchange value and appraised value. Such a concept must be omitted from consideration in determining the rate base, for to include it would throw us back simply to market value, the objections to which have already been emphasized.³³

That aspect of going value which is based on goodwill cannot legitimately be allowed unless an actual expenditure has been involved to secure it. Goodwill, as generally used to indicate an element of value derived from the fixed and favorable consideration of customers, has no place in rate making, since the customers usually have no option in placing their patronage.³⁴

More justifiable, however, are the claims made by public service corporations that accrued deficits and unpaid early losses should be given consideration. The Wisconsin Railroad Commission was one of the first to establish a definite procedure for handling early deficits. Under its plan, which has been followed elsewhere with variations, early deficits may be capitalized on the same basis that engineering expenses, legal fees, and other

"That there is an element of value in an assembled and established plant, doing business and earning money, over one that is not thus advanced is self-evident. This element of value is a property right, and should be considered in determining the value of the property upon which the owner has the right to make a fair return. . . ." (p. 815).

³² See Hartman, H. H., *Fair Value* (Boston: Houghton Mifflin Co., 1920), p. 179. "Four definitions [of going value] have been generally used. The term has been interpreted as the mere attribute of a utility in normal operation—organized, operated, and engaged in the public service. It has been defined as the difference between the exchange value of the plant and its appraised present value. Going value has been used as synonymous with 'good will' to mean the probability of customers continuing to come to the same company for service. And the term has been held to mean the net unrecompensed deficits sustained by the company during the development stage of its existence, while operating at a loss."

³³ See *Fuhrmann v. Cataract P. & C. Co.*, 3 N. Y. P. S. C. (2d Dist.) 656

³⁴ See *Willeox v. Consol. Gas Co.*, 212 U. S. 19, 29 Sup. Ct. Rep. 192, 53 L. Ed. 382; *Des Moines Gas Co. v. Des Moines*, 238 U. S. 153, 59 L. Ed. 1244.

construction expenses are capitalized.³⁵ The commission, however, does not take into account losses due to bad management.³⁶

Valuation for purposes other than rate making. It would take us too far afield in our present problem to discuss all the points of difference between valuation for rate purposes, for capitalization, for purchase, and for taxation. Generally, however, the following distinctions may be said to exist. In valuations for rate purposes, what is sought is a fair value upon which to base a fair return. And fair value has, with the exception of certain increases in value, been used to imply at least an investment or sacrifice on the part of the owners of the public service corporation. Valuation for capitalization will be substantially the same as valuation for rate purposes if the securities outstanding have adequate earning power to support their value. Valuation for tax purposes, on the other hand, tends more closely to conform to market value, and, where earnings are low, may be considerably less than fair value for rate purposes.³⁷ Tax laws differ widely and the bases of appraisal are many. In fact, precedents as to appraisals for tax purposes show that public utility properties, as well as other types of property, are generally appraised at market value. Further, there is no relation between earnings, rates, and value to consider here as in the case of valuation for rate purposes. Valuation for purchase, while closely related to valuation for rate purposes, is also different.³⁸ There are grounds here for leaning strongly toward the capitalization method of value, or at least for taking into account the

³⁵ Outlined in *City of Milwaukee v. Milwaukee Gas Light Co.*, 12 W. R. C. R. 441. Court decisions are not unanimous, however, and one authority quotes with approval the following adverse holding. "... the fact that a utility may reach financial success only in time or not at all, is a reason for allowing a liberal return on the money invested in the enterprise; but it does not make past losses an element to be considered in deciding what the base value is and whether the rate is confiscatory." Quoted from *Galveston Electric Co. v. Galveston*, 258 U. S. 388. See Bauer, John, and Gold, N., *Public Utility Valuation for Purposes of Rate Control* (New York: The Macmillan Co., 1934), p. 328. For a more detailed discussion see Chapter XIII of this reference.

³⁶ *Superior Commercial Club v. Superior Water, Light & Power Co.*, 11 W. R. C. R. 704; *Galveston Elec. Co. v. City of Galveston*, 42 Sup. Ct. Rep. 354. Consult recent treatise on this subject by Blood, W. H., Jr., "Going Concern Value in Rate Cases," Reprint No. 28, *Stone & Webster Journal*, Aug., 1922. See also "Going Value as an Element in the Valuation of Public Utility Properties," *Harvard Business Review*, Vol. I, pp. 359-367.

³⁷ See *Proceedings of the 23d Annual Convention*, National Association of Railway Commissioners, Oct., 1911, p. 148.

³⁸ See *Willcox v. Consolidated Gas Co.*, 212 U. S. 19, 29 Sup. Ct. 192, 53 L. Ed. 382; *Omaha v. Omaha Water Co.*, 218 U. S. 180, 30 Sup. Ct. 815.

market value of the property as being the product of two variables—cost and rates.³⁹

A fair return on fair value. Closely related to the problem of the valuation is the question: What constitutes a fair return? The determination of a rate base is of little consequence unless it is known what net return should be allowed on it. For steam railroads, in the early 1920's a return of 5¾ per cent was considered by the Interstate Commerce Commission (under mandate from Congress) to be a fair return. The courts and state commissions, on the other hand, have been somewhat more liberal in the case of public utilities and generally allowed between 7 and 8 per cent in the 1920's; in the later 1930's, the rate tended to run around 6 per cent.⁴⁰ Again, it should be recalled that

³⁹ See *Fuhrmann v. Cataract Power & Conduit Co.*, 3 N. Y. P. S. C. (2d Dist.) 656.

⁴⁰ The following is a résumé of some of the decisions in the 1920's bearing on the rate of return which public utility companies have been allowed to earn:

A return of 7 per cent was held reasonable for an electric utility. *Re Houghton County Electric Light Co.*, (Mich.) P. U. R. 1924-B, 32.

An annual return of 8 per cent of the value of an electric utility was considered just and reasonable. *Northwestern Ohio Light Co. v. Leipzig*, (Ohio) P. U. R. 1924-B, 762.

A return of 7 per cent was considered reasonable for a water utility. *Re Indianapolis Water Co.*, (Ind.) P. U. R. 1924-B, 306.

Three decisions in reference to electric light companies in 1924 by the California commission allowed returns as follows: *Re Southern California Edison Co.*, P. U. R. 1924-C, 1 (7.5 per cent); *Re Coast Valleys Gas & Electric Co.*, P. U. R. 1924-C, 40 (8 per cent); *Re Coast Counties Gas & Electric Co.*, P. U. R. 1924-C, 415 (8 per cent).

A street railway utility was allowed 7 per cent for an annual return. *Re Omaha & Council Bluffs Street Railway Co.*, (Neb.) P. U. R. 1924-A, 627.

A public utility company operating electric, heating, and telephone departments and rendering efficient service was allowed a return of 8 per cent upon the present fair value of its property. *Re Northern States Power Co.*, (N. D.) P. U. R. 1924-A, 325.

A gas utility was allowed a return of 7 per cent on the fair present value. *Re Springfield Gas & Electric Co.*, (Mo.) P. U. R. 1924-A, 613.

A gas utility which had made investments in advance of demands for service was allowed a return of 7 per cent. *Trustees of Freeport v. Nassau & Suffolk Lighting Co.*, (N. Y.) P. U. R. 1924-A, 96.

The return of a telephone utility was fixed at 8 per cent annually. *Re Interstate Utilities Co.*, (Ida.) P. U. R. 1924-A, 197.

A rate of return of 9 per cent was declared excessive for a telephone utility, while a return of 7½ per cent upon the rate base was found to be just and reasonable. *Illinois Commerce Commission v. Chicago Telephone Co.*, (Ill.) P. U. R. 1924-A, 213.

A return of 8 per cent was held to be a rate customarily required to be named on the present value of the property of a regulated gas utility. *Consolidated Gas Company of New York v. Prendergast*, P. U. R. 1925-B, 773 (U. S. District Court, N. Y.). (*continued p. 372*)

there is no guaranty or assurance that a particular company will earn a fair rate on its investment. The only protection actually afforded to the investor in utility companies is the assurance that the company, under normal management, will be allowed, within reasonable limits, rates that will provide a fair return on the fair value of property used for the public good. In periods of changing business conditions, rate adjustments may be so slow as to cause this general rule to fail. Furthermore, a utility may, through overextension or unusual losses of business to competing substitute industries, be unable to earn a fair return under any scheme of rates.

Other problems of regulation. It is easy to see how the protection afforded public utility companies by the courts in the matter of rates and valuations gave rise to other problems of regulation that called for a widening of the commissions' powers to include more than rate-making activities. It is true that neither the courts nor the commissions have ever stood ready to sanction unreasonably high rates, even though such rates might be necessary to give a fair return on property investment. Nevertheless, in view of the accepted idea that a reasonable return should be allowed, where possible, it appeared logical to give the commission power to authorize extensions to existing plants, to determine whether a new plant should be permitted to enter the field, to regulate security issues, and to approve consolidations and mergers. In other words, since a company must be permitted, where reasonably possible, to earn a fair return once it is in the field, why should not the commission be permitted to

In the 1930's:

An electric company was allowed a 6½ per cent return on present fair value devoted to the public service. *Public Service Commission v. Kansas City Power & Light Co.* 30 P. U. R. (N. S.) 193 (1939).

A 6 per cent return was held not confiscatory for an electric utility. *Driscoll v. Edison Light & Pr. Co.* 307 U. S. 104. P. U. R. (N. S.) 65 (1939).

A 6 per cent return was found reasonable for a natural gas utility in Texas. 129 S. W. (2d) 1164. P. U. R. (N. S.) 263 (1939).

A 5½ per cent return was held reasonable for an electric and steam utility in a metropolitan noncompetitive situation in Michigan. *Re Detroit Edison Co.* 16 P. U. R. (N. S.) 9 (1936).

A return of 7 per cent was deemed reasonable for a Florida electric utility even though 10 per cent had been fixed in franchise. *Florida Power & Light v. Miami.* 25 P. U. R. (N. S.) 321, 98F (2d) 180 (1938).

An Illinois court held that a fair rate of return for the years 1923-1927 was 7.5 per cent; for the years 1928, 1929, and 1930, 7 per cent; for 1931, 6.5 per cent; and for 1932 5.5 per cent. *Illinois Bell Telephone v. Gilbert*, 3 F Supp. 595, P. U. R. 1933 E, 301.

determine, before any investment is allowed at all, whether there is sufficient need for its services at fair rates to assure a fair return? The same argument applies to extensions of present plants. Since they are obliged to permit a fair return, should not the commissions have power to regulate the issue of securities which are to be sold to the public and for which the public looks to the commission for adequate earnings? Since earnings may be accurately or inaccurately stated according to the methods of accounting employed, in many cases the commissions are given power to prescribe the methods by which accounts shall be kept. On the basis of this reasoning, therefore, a gradual extension of the powers of utility commissions has taken place over the entire field of public control. The status of the commission control as it is now customarily exercised will be considered briefly.

General discussion of powers of commissions. Regulation of local utilities is distinctly a state, not a Federal, function. Accordingly, one expects to find a wide variation in the powers granted in the different states.⁴¹ While practically all state commissions are granted authority over rates, and many states are also given the power to determine valuation for rate-making purposes, only twenty-four commissions have authority in all four of the closely related matters; namely, valuation, rates, service, and capitalization. It is further observed that, while nearly all of the states do, or may, require privately-owned properties to make reports of financial operations, only a very few publish these reports. In connection with rates, proceedings may usually be initiated upon petition of customers or utilities, and sometimes upon the commission's own motion. The commission's function is to conduct hearings and, after considering all the facts, to grant rates that are reasonable to the public and allow a fair return on the fair value of the property owned by the utility and used in the public interest. The question of fair value is closely connected with that of rate structures, and today rate cases generally involve questions of valuation that are considered simultaneously.

Another important function usually performed by the com-

⁴¹ In recognition of the desirability of improvement and uniformity, a Uniform Public Utilities Act has been approved and promulgated by the National Conference of Commissioners on Uniform State Laws. The act is the joint product of the National Association of Railroad and Utilities Commissions and the Public Utility Law Section of the American Bar Association.

mission is that of prescribing and enforcing proper standards of service. Thus, for electric railway companies, commissions are given the power to prescribe the frequency of car service, the number of seats per car, braking and other safety equipment to be installed, conditions of operation, and so forth. For electric and gas companies, the service, such as voltage regulation, the B.T.U. content of gas, and proper tests for meters, is regulated. Some commissions prepare and publish elaborate rules and regulations, regarding not only the preceding matters, but also the standards and character of property construction, the adjustment of interference problems in connection with high-tension transmission lines, specifications for grade crossings, and other matters that are related to efficient and continuous service.

As commission control has been extended to cover matters of rates and valuation, it has been found necessary to include, under regulatory functions, the control of accounting methods. Accordingly, many commissions are empowered to establish standard accounting systems for all utilities under their control. The purpose of this standardization is to secure uniformity in the annual reports made by utilities to the commissions. Without such standardization accurate comparisons over a period of years would be impossible. Furthermore, the use of standard systems of accounts prevents misrepresentation through manipulation of the accounting for reserves, depreciation, retirements, and additions and betterments. In some cases commissions are empowered not only to establish standard accounting systems, but also to prohibit the maintenance of any other systems of account or memoranda. This power is expressly granted to the Interstate Commerce Commission.

There are about thirty-two commissions having specific jurisdiction over the capitalization of utilities. When a utility company wishes to issue long-term securities, it is required to file with the commission a statement of the character and amount of the issue, the purposes for which the proceeds are to be used, available income, data relative to present capitalization, values, and so on. The approval of the commission is then required before the securities can be sold.

While the legal theory is that a fair rate is one which will allow the utility company to earn a fair return on its operating utility property, there is no guaranty that such a return will be earned, or that the promised interest or dividend rate will be earned on any given issue of bonds or stock. Nevertheless, regulatory

commissions often feel a certain responsibility toward the security holders in companies over which they have regulatory powers. It is a logical extension of power, therefore, to include control over the matter of security issues. When the commission is empowered to pass on or to approve a given security issue, it is then in a position to check the purposes for which it is to be used, the amount of the proposed issue with respect to present earnings and assets, the probable need for the extensions that are to be financed out of the proceeds of such issues, and so on. Needless to say, the commission is not likely to assent to securities issued against inflated values or for the erection of extensions that are likely to be unprofitable. Furthermore, inflation, stock watering, and security jobbing are minimized when the commission has control over these matters.

Closely allied with jurisdiction over new capital issues is the power frequently given to commissions in regard to extensions of public utility property. Extensions to existing property are often made by companies as a matter of routine. In other cases, however, the expenditure of large sums of money is required, with the promise of little revenue. If it appears that this situation is temporary, and immediate losses are small in respect to total revenues, no important questions arise. If, however, extensions are likely to remain unprofitable for a substantial period of time and to impose a burden on the entire system, thus necessitating higher rates, it is the function of the commission to determine the wisdom of such a program.

The utility commissions in about thirty-one states are authorized to regulate the extent to which competition among all or certain specified utilities will be permitted. It is customary to require the utility company, before it can undertake operations within the state, to apply to the commission for a certificate of convenience and necessity. If no other similar utility is already operating within the region to be served, and if the applying company offers promise of successful operation, the certificate is granted. However, if the territory is already adequately served by an existing company, in a manner reasonably satisfactory, and at reasonable rates, usually the petition is denied. Here legal sanction is given to the economic law, already discussed, that utilities are natural monopolies. Under normal conditions one company can serve the community better and more economically than can several, provided that intelligent control prevents the company from charging unreasonable rates

Figure 14—Summary Chart Showing Jurisdiction of State Commissions over Public Utilities.

State or District	JURISDICTION EXTENDS OVER OPERATIONS OF PRIVATELY OWNED COMPANIES						SPECIFIC ENACTMENTS AUTHORIZING COMMISSION REGULATION OF PRIVATELY OWNED ELECTRIC AND GAS COMPANIES AS TO:				REPORTS OF FINANCIAL OPERATIONS OF PRIVATELY OWNED ELECTRIC AND GAS PROPERTIES			AUTHORITY INCLUDES REGULATION OF MUNICIPAL ELECTRIC PLANTS AS TO:		
	Electric Light & Power	Gas	Street & Inter-urban Railways	Motor Vehicles, Buses	Water	Telephone & Telegraph	Specific Authorization to Make Valuation	Rates	Capitalization & Issuance of Securities	Articles of Incorporation & Convenience Necessity	Are or May be Required	Open to Public	Published by Commission	Rates	Service	Accounting
1. Alabama.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
2. Arizona.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
3. Arkansas.....	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
4. California.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
5. Colorado.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No
6. Connecticut.....	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes
7. Delaware.....	No Commission	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
8. Dist. of Columbia.....	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
9. Florida.....	No	No	St. Ry.-Inter-urban	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No
10. Georgia.....	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No
11. Idaho.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No
12. Illinois.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
13. Indiana.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No
14. Iowa.....	No	No	St. Ry.-Inter-urban	Yes	No	No	No	No	No	No	No	No	No	No	No	No
15. Kansas.....	Yes	Yes	Inter-urban	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In part	No	No	No
16. Kentucky.....	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No
17. Louisiana.....	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	No	No	No	No
18. Maine.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	In part	Yes	Yes	Yes
19. Maryland.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
20. Massachusetts.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
21. Michigan.....	Yes	Yes	No	Yes	No	Not Telegraph	Yes	Yes	Yes	Yes	In part	Yes	No	No	No	No
22. Minnesota.....	No	No	Yes	Yes	No	Not Telegraph	No	No	No	No	No	No	No	No	No	Yes
23. Mississippi.....	No	No	St. Ry.-Inter-urban	Yes	No	Yes	No	No	No	No	No	No	No	No	No	No
24. Missouri.....	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No

[illegible]

Motor Vehicles only.

Except statistical summaries
of motor vehicles only.

On petition for capitalisation or after rate increases.

* Indirectly through fixing rates.

Only where the major portion is outside a municipality.

Only where the major part of the tax is paid outside of cities.

or from rendering inadequate service by virtue of its monopoly. This general principle was violated, however, by the New Deal policies of the Federal Government, which tendered low-cost loans to municipalities in order that they might establish competing plants without subjecting the questions of the fairness of existing rates or the adequacy of existing private plants to the study of either regulatory commissions or judicial review.

Figure 14 (pages 376-377) shows, in a general way, the scope of commission jurisdiction in the states at the present time.⁴²

It is interesting to note at this point that, while commissions have been given broad regulatory powers in respect to utilities, they have not been delegated managerial powers. That this distinction be maintained is important. If regulated utilities are to grow and to continue to meet the demands for their service, they must be made to retain full responsibilities for such service. A division of responsibilities between commission and company would be fatal. In fact, various courts, even the Supreme Court of the United States, have held that commissions cannot lawfully assume managerial functions and responsibilities that inhere in private ownership and operation.⁴³

Significance of regulation to investor. The significance of this situation to the investor in public utility securities may now be more fully explained. In the first place, it is evident that public utility enterprises occupy a position of unique importance in economic life. They supply basic necessities, usually under monopolistic conditions. Frequently the monopoly they enjoy is the result of a direct grant of the legislature. On the other hand, they are subject to public control, which limits the return they may earn. Yet, there is an implied contract with the public that charges will be authorized to permit a fair return on the fair value of property used for public service. Consequently, the investor expects, and generally finds, that the earnings of utility companies, while steady, are limited. There is a reasonable assurance that a fair return will be earned on securities out-

⁴² From *Bonbright Utility Regulation Chart*, revision of 1940 by *Moody's Manual of Investments: Public Utility Securities* (New York: Moody's Investors Service, 1940), pp. a80-a83. For data on other points see latter reference.

⁴³ "So far as appears, plaintiff in error's board of directors has exercised a proper discretion about this matter requiring business judgment. It must never be forgotten that, while the state may regulate with a view to enforcing reasonable rates and charges, it is not the owner of the property of public utility companies and is not clothed with the general power of management incident to ownership." *Re Southwestern Bell Telephone Co.*, 262 U. S. 276, P. U. R. 1923-C, 193, 200.

standing, in so far as there is no overcapitalization. On the other hand, the investor no longer looks to the securities of public utility operating companies for the large speculative profits that occasionally come from commitments in industrial securities.

Furthermore, the extension of the powers of public utility commissions to cover such matters as the right of new companies to enter the field, the issuance of new securities, extensions to existing properties, and accounting afford the investor in public utilities a certain amount of protection not found among industrial securities. Where the utility is located in a state with intelligent commission regulation, there is at least a presumption in favor of the soundness of its underlying securities, bonds, and preferred stocks that may even be extended to the common stock of the company.

Property values and earnings in relation to values. When appraisals of the assets of a public utility have been made and have been accepted as the valuation, or rate, base by the regulating commission, they afford the investor a fairly good check on the book value of the assets, as well as on the real value of the stocks and bonds that the company has outstanding. Where such appraisals indicate that primary emphasis is laid upon current reproduction value rather than upon original cost, the dangers of a falling price level should be remembered. The question of property values is of far greater importance for public utilities than for industrials. In the latter case, security values depend largely on earning power, which results from charges regulated by competition only. The real worth of an industrial plant is determined by what it can earn year in and year out. The extent of physical assets may occasionally prevent the value of its securities from going below certain levels, but the dearth of extensive physical assets will not prevent its common stock from rising to high levels, where earnings so warrant. On the other hand, in view of the close relationship between the earnings and asset values of public utilities, a relationship reinforced by legislative and judicial control, it is apparent that the market value of securities outstanding should bear some relation to the fair value of the actual property owned.

Guaranty of fair return. Regulation, however favorable to the utility, in no wise affords a guaranty that a fair return will be earned by any given company on its property investment. The existence of regulation does not serve to abolish all economic hazards. Even though a given enterprise is protected from the

competition of like concerns, there still exists the constant possibility of competition from the use of substitutes. The best recent example of such competition is found in the increased use of automobiles, taxis, and buses at the expense of electric street and interurban railway systems. Other forms of competition by substitution can readily be recalled. The development of electricity, as a means of lighting, at one time threatened the gas industry, although the latter has developed sufficient new business in industrial and domestic heating fields to offset the increased use of electricity in the lighting field.

Economic hazards in utility operation. Further hazards to which utility companies are subjected are economic in nature. Rising production costs require increased rates. Yet, increased rates may discourage consumption to such an extent that operating revenues will remain constant or even decline. On the other hand, public utility enterprises operate under the law of increasing returns, so that expenses cannot be reduced readily as business declines. Net earnings, therefore, are not always controlled through the rates allowed. Another factor that may reduce earnings is a decline in the population of a community. Consequently, it is very necessary that the investor be familiar in a broad way with conditions in the territory in which he invests his funds.

Regulation as an investment factor. The regulation to which public utilities are subjected may react unfavorably on the investor. There is no doubt that the railroads of this country were treated unfairly by the Interstate Commerce Commission from 1910 to 1920. Rates were kept at relatively low levels despite rising costs. The same situation occasionally has prevailed in respect to public utilities in certain states. One must always consider the possibility that regulatory bodies may lean in favor of the people from whom they derive their power rather than toward the companies they regulate. This tendency was less in evidence during the decade 1921 to 1930 than ever before. As the depression deepened in the succeeding years, pressure was brought to bear upon regulatory bodies to reduce rates in order that they might be "brought into line with other lowered prices" without too much regard for the general principle of "fair return" or the limitation upon the return of utilities in good times. It has been demonstrated that excessive or unfair regulation discourages the investment of capital and prevents the utility from rendering proper service. Commissions now recognize the ne-

cessity of fair treatment to all, and in most states a real effort is made to regulate in a manner that does full justice to all. The courts have likewise held to this view, with the result that the return allowed was formerly, at least in normal times, about 7 or 8 per cent and more recently about 6 per cent. But when business conditions are subnormal, the investor will look into the possibilities of hostile regulation and the possible influence of Federal encouragement to municipal competition, especially in the areas in the vicinity of Federal water power projects.

Economics of public utility operation: capitalization and output. A comparison of sales to total investment for manufacturing companies often shows that ratio running in the neighborhood of one. By contrasting such a figure with those of typical utility companies, where the capitalization will normally range between four and five times its annual gross revenues, one is impressed with the heavy capital requirements of the utility industry. Approximate estimates of the relation between capital invested and value of output for leading types of utility are as follows:

DOLLARS OF CAPITAL INVESTED PER DOLLAR
OF REVENUES

	1927	1932	1937
Electric Light and Power	\$4.73	\$5.85	\$5.75
Electric Railways.....	5.90	8.96	...
Telephone (Bell System)....	2.87	3.99	4.24
Manufactured Gas..	4.52*	4.91	5.43†

* 1928.

† 1935.

The rise in the ratio between 1927 and 1932, shown in the preceding table, is due primarily to a marked reduction in the volume of business between 1930 and 1932 as a result of widespread depression. The relatively high average figures for the traction industry represent its depressed condition as a result of business lost to competing forms of personal transportation and consequent lack of full utilization of facilities.

This situation is due partially to the fact that typical industrial companies constitute only one unit in the entire process of manufacture. Consider, in this respect, the various operations performed in the conversion of iron ore into a finished automobile. Similarly in the textile industry, the raw product often

other hand, the entire process is often consummated at one step. However, many gas companies have in recent years purchased from natural gas companies an increasing proportion of the gas they have sold. The cost of materials forms a much smaller proportion of total output in most public utility enterprises than in typical industrials.

The load factor. There is still another reason, however, why the capital requirements of utilities are high in relation to output. This condition is due to the fact that, in the nature of the case, the plant and distribution facilities are not fully utilized at all times. The degree of capacity utilization is usually measured and expressed as the "load factor." This term may be defined for a given station as the ratio of the average load to the peak load during the period—in other words, as the ratio of the average rate of output during the year to the maximum demand at any instant or for some very short period of time during that year.

The demand for the services of public utility companies varies widely, not only from season to season, but from day to day and from hour to hour.⁴⁴ Figure 15, showing the load curve of a power plant, is given in order to illustrate this point. The average load of this station for the 24-hour period was 2,580 kilowatts, as contrasted with a maximum load of 6,000 kilowatts. The

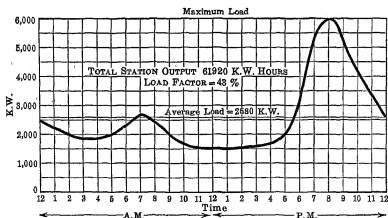


Figure 15—Load Curve of Typical Power Plant.

⁴⁴ For further discussion and illustrations of the operation of the load factor in the several utility fields, see Dorau, H. B., *Materials for the Study of Public Utility Economics* (New York: The Macmillan Co., 1930), pp. 208-226.

load factor is thus expressed as 43 per cent. There were times during the period when the actual load was below 1,500 kilowatts, or less than 25 per cent. The curve covers a period of only one day. There would be further variations in the load factor for different days of the week and for different months of the year. The demand for current from electric light and power companies serving primarily domestic customers is much heavier during winter months than during summer months.

The same general principle applies as well to other utilities. Street car companies must have sufficient equipment and operating force to meet early-morning and late-afternoon demands for service, although a substantial part of this equipment may be idle during the remainder of the day. Gas companies must be able to supply sufficient gas to meet household requirements at meal hours, although demand may be much lower at other times. Water companies are subject to even greater variations in demand, especially since they must provide for fire protection as well as for normal uses.

Such variations in the demand for utility services have a two-fold significance for the investor. In the first place they explain in part the apparently heavy capital requirements of such enterprises. Furthermore, they furnish the investor with a partial guide to the earning capacity of a given company. Obviously the greater the maximum variations from the average output, the greater the capital investment necessary to deliver a given amount of service and the lower the rate of gross return, other things remaining equal. Conversely, the smaller the variation between average and maximum output, the more effective the employment of the investment in a given utility.

Rate structures. Since the utility is limited in the rate of return it may earn, an ideal rate structure is one that enables the company to produce a maximum output and still earn that return. In seeking this end, the utility company endeavors, among other things, to increase its load factor. At first glance it might appear that rates for service should be the same for all consumers. Such uniformity in rates, however, would be unfair as well as uneconomical. There is a wide difference in the production cost of the various units sold, depending on the quantity sold to a given customer, the regularity or continuity of service, the time at which the service is required, and so on.

In considering first the problem of rates in the electric light and power industry, let us refer briefly to Figure 15. This chart

shows that the load on the station there referred to, between the hours of 11.30 a.m. and 1.30 p.m., was only about 23 per cent of its maximum capacity. In fact, between 12.01 a.m. and 5.30 p.m., this plant had a substantial amount of excess capacity. In order to increase the use of current during these hours, the management would be justified in selling current at a substantially lower rate than during the hours 6.00 p.m. to 11.30 p.m. In fact, it would be possible substantially to ignore capital costs in devising rates to stimulate the use of power during certain hours of the day, so long as so-called increment, or out-of-pocket expenses, were met and a profit was shown; that is, so long as the utility company has its investment built up to meet the peak load. The addition of customers whose use of current can be restricted definitely to certain hours will require no additional capital investment. On the other hand, customers who make further demands on the capital facilities of the company, because of the nature of their business, should be charged a higher rate.

Looking at the problem in another way, one observes that a consumer having a 40-horsepower motor in use two hours per day uses as much power as another consumer with a 10-horsepower motor that is used eight hours a day. Yet it takes four times as much capital to supply the first user as the second, a fact that should be taken into account when rate structures are established. A proper structure will account for the fixed charges required to furnish a given service as well as for the operating expenses which vary in proportion to the time during which the power is used.

A given rate structure, then, may or may not adhere strictly to the usual cost-of-service idea, which regards all units of a uniform product as of equal cost. Adjustments in power rates must be made to meet competing sources of power. Since motors used by manufacturers are operated for the most part during the daytime, when a large percentage of the utility's generating capacity is idle, power rates are generally lower than lighting rates. Power rates may vary further for different concerns, depending on continuity of use, time of maximum load, and the rate that can be put into effect without causing the use of competing sources of power.⁴⁵

⁴⁵ It must also be kept in mind that the demands of customers are diverse, and that their maximum instantaneous demands do not coincide. This is a determining factor in the adjustment of plant capacity to meet demand. This diversity is often expressed and measured by what is called the diversity factor. If a group

Although there are several different types of industrial power rate structures in use, the following method of constructing charges is frequently used: a flat charge is first determined, based on the horsepower of connected load; the meter or service rates are then made up of a primary rate based upon one hour's use per day of the load and a secondary and lower rate for each additional hour's use of the load per day.

Incandescent lighting and domestic rates are adjusted at a point that reflects the principle of joint-cost product pricing. The competition of alternatives is less felt here than in the case of power service, with the result that, in the past, domestic rates have often been so adjusted that the return therefrom, together with other revenues, constituted an adequate return on invested capital after payment of operating expenses. In recent years, however, the tendency has been to lower domestic rates in order to stimulate greater use of electric energy for household accessories, particularly those used during the day.⁴⁶

In the gas industry somewhat similar problems arise, although the general practice here is much simpler than in the electric light and power field. Formerly gas was generally sold at a flat rate per thousand cubic feet used, regardless of the amount of the customer's consumption, a practice which ignored the fact that the large customer might represent no greater investment in main, meter, and office overhead than the small one.⁴⁷ Currently, however, the tendency is toward a reduction in charges when gas is used in volume for heating. It is only by offering such an inducement that gas companies can stimulate extensive use of gas for this purpose.

Telephone companies often charge flat rates for home telephones, although such a charge does not fully reflect the cost of service to the individual subscriber. Furthermore, telephone rates for residential subscribers are usually lower than rates for

of concerns so operate that their maximum demands do not fall at the same time, the maximum station load resulting from such service will be less than the total of the maximum demands of individual customers. The diversity factor may be defined "as the ratio of the total of the maximum demands of individual customers occurring at any time during a given period to the maximum station load resulting from such service at any time during the same period." See Nash, L. R., *Economics of Public Utilities* (New York: McGraw-Hill Book Co., 2d ed., 1931), p. 268.

⁴⁶ See Cabot, Philip, "Studies in the Household Market for Electricity," *Annalist*, Nov. 18, 1927, p. 779.

⁴⁷ Where the large consumer's use involves a larger instantaneous demand, an additional investment in main is required

business telephones, even though the capital investment for the former service is usually greater. The reason for this anomaly is that the business telephone is a necessity and must be had regardless of cost. The residence telephone is not a necessity and its use is stimulated only by means of a low rate. Such a rate appears to follow the old principle of charging what the traffic will bear, but probably is justified by the greater use of the business telephone. An ideal rate structure would provide for a flat monthly rate to each customer plus a charge for service in proportion to the number of calls originated. The use of this system is now more common than it was formerly, when mechanical and accounting difficulties militated against its success. The system of toll rates and the use of prepayment telephones approach the cost-of-service principle, although the practice of lowering the toll rate during evening hours to stimulate the use of facilities after the time of peak load recognizes the principle that, so long as out-of-pocket expenses can be met and a slight profit shown during periods of limited use, it is better policy to stimulate demand than to allow facilities to remain idle.

Rate making for electric railways has been subject to experimentation. Rising costs of operation, the increased use of automobiles, and bus competition have created a real problem for such companies. In contrast to the European practice, where zone fares have been in general use, the American practice has been to charge a uniform fare for urban transportation regardless of distance. However, some attempts have been made to institute the zone system. In such cases the plan has been to narrow the urban area and to zone the surrounding area by belts, varying in width, at which points a supplementary fare is charged. Generally speaking, such attempts have not been successful.

A somewhat different approach to the problem of assessing costs to users of service is found in the weekly pass or the nickel permit. In the former case a weekly pass is sold entitling the purchaser to an unlimited number of rides during the week. Under the nickel permit plan the patron purchases a monthly permit which entitles him to an unlimited number of rides at five cents. Those who do not hold such permits pay a higher cash fare.

The problem of the electric railway has been made acute by the loss of traffic to the private automobile. Fare increases may

fail to increase revenues because they drive away business. The tendency has been for the motor bus to be substituted for the electric street and interurban railway because of lower capital costs and greater efficiency where traffic is light.

Customer ownership of public utilities. The ownership of public utilities may rest in the municipality, in the hands of stockholders—some possibly absentees—or of the customers of the utility itself through extensive stock ownership. Municipal ownership of public utilities, while not uncommon in this country, is not the general rule.⁴⁸ The important exception to this statement is the water works, which is frequently owned by the community served.

There is considerable feeling in this country that municipal ownership of utilities, particularly electric light and power, gas, and electric railway enterprises, is likely to be uneconomical. The opportunity for mismanagement and waste is opened, and, there is little incentive for technical improvements. It is too easy, under public ownership, to cover up deficits, or to make them up from taxes.

Where there is absentee ownership of a utility, the stock being held by so-called "banker," or "Wall Street," interests, there is always the possibility of misunderstanding and controversy. In the early history of public utility development, when investment values were not stabilized, it was natural that outside, or business, capital should have been largely used. The customers of utilities financed in this manner suspected that exorbitant profits were going to unknown owners, and the groundwork was thus laid for unsatisfactory public relations.

Customer ownership was first undertaken in a large way by light and power companies. In 1920 about \$43,000,000 of the securities of such companies were sold to customers. In 1925 sales of securities to customers reached the peak figure of \$298,000,000. In the later years of the decade declines occurred, so that 1930 sales were about \$135,000,000. It is estimated that over \$1,900,000,000 worth of securities, one fifth of the total

⁴⁸ The city of Seattle has operated its lighting plant since 1904. In 1919 it purchased the Seattle railway system. The major part of the present Detroit Electric railway system was purchased from private owners in 1922. The city of Cleveland operates a lighting plant which does about 13 per cent of the electric light and power business in Cleveland. The city of Los Angeles purchased, in 1922, the local distributing system from the Southern California Edison Company, which it operates in connection with a municipally owned hydroelectric plant.

investment in the industry, were sold to customers and employees during the decade 1921 to 1930.⁴⁹

Local ownership tends not only to strengthen the financial position of a utility company, but also to lessen the risk of undue lowering of revenues by regulatory authorities. A further advantage accrues from the fact that a continuous market for new securities of the company is afforded. Sales of utility securities, chiefly preferred stock, to consumers have generally been conducted by the companies themselves with the aid of employees. The expenses of such sales frequently amount to less than bankers' commissions. The investment banking interests, however, favor such a movement, for it not only has the direct effect of stabilizing the market for public utility securities in general, but it is helpful to all the securities of the local company.

Tests of utility development: capital costs. As previously suggested, the ratio of the cost of public utility properties to operating revenues generally ranges between 4 to 1 and 5 to 1. Such measures of cost, however, lack dependability because of wide variations in rates and the development of business in different areas. More accurate measures of cost may be obtained by reference to the standard units of operation for different utilities. For electric railways, the mile of track is a unit; for electric companies, the power station kilowatt capacity; while for the gas company the unit of measurement is the plant capacity, or annual product.

Even with these measures it is dangerous to generalize regarding the capital costs that should apply at any time to different companies. Not only are such costs affected by changes in the price level, but conditions vary widely in different localities; customer density, physical characteristics, industrial development, and wealth, all have their effect on the capital cost of erecting a utility plant. With these difficulties in mind, we suggest the following figures for what they are worth. The present cost of urban steam electric power properties will normally range between \$250 and \$450 per kilowatt of station capacity. The cost of constructing urban electric railway properties will normally vary between \$50,000 and \$140,000 per mile of operated track, while in the gas industry the cost of plant will range between \$4 and \$6 per thousand cubic feet of annual sales.

Adequacy of facilities and extent of use. The investor is in-

⁴⁹ *Electrical World*, January 3, 1931, p. 73.

terested not only in the capital costs of a particular utility, but also in the ability of the company to furnish adequate service to the community and in the extent to which the company's facilities are being used. The best measure of the facilities of an electric light and power company is its power station capacity per 1,000 of population served. Granted that territorial requirements vary widely, the normal range of power station installed capacity should run between 200 and 400 kilowatts per 1,000 inhabitants.⁵⁰ The availability of electric service is measured by the ratio of meters to population. This ratio normally will fall between 18 and 25 meters per 100 of population served, with a tendency for the figure to run toward the higher amount.⁵¹

The best index of the extent to which an electric plant is used is found in the kilowatt hours generated per annum per capita. This ratio will vary, depending on the extent of industrial development, the rates in effect, and other factors; in the average community it will run between 400 and 700. Power actually sold will average from 10 to 20 per cent below this figure. The preceding index may be supplemented by a study of the kilowatt hours generated per annum of kilowatt station capacity. In this way a check is made on the plant's load factor. A normal plant will produce between 2,000 and 3,500 kilowatt hours per kilowatt of station capacity, although some companies run to 5,000 or higher. While in well-developed systems the actual factor will run as high as 40 to 50 per cent, or occasionally higher, it is more likely to fall between 30 and 40 per cent if large industrial use is lacking.⁵²

A similar series of tests may be made in respect to urban railway systems. The customary measure of railway service is the annual car miles of operation per capita. The figures will ordinarily lie in the range between 25 and 50 per unit of population. The amount will run highest in the larger, congested metropolitan areas. In small cities where the automobile parking problem is less acute, the figure will be lower. The amount of track mileage may be expressed in miles of track per 100,000 of population. The ratio will ordinarily fall between 40 and 70 miles. The utilization of this trackage may be studied in terms of cars operated per mile of track, or better still, the number of car

⁵⁰ Nash, L. R., *Economics of Public Utilities* (New York: McGraw-Hill Book Co., 2d ed., 1931), p. 345.

⁵¹ *Ibid.*, p. 347.

⁵² *Ibid.*, pp. 348-349.

miles per mile of track. The latter measure reaches 100,000 in some large cities; has even been double that figure for the surface lines in New York City; and it may fall to about 25,000 in the smaller cities.⁵³

The customary test by which the patronage of an electric railway is measured is the revenue rides per annum per capita. The riding habit, as this ratio is called, will range somewhat less than 100 in cities of less than 50,000 of population to over 250 in the larger cities.⁵⁴ The variation is great even among cities of similar size.

The development of facilities by a gas company is commonly measured by determining the number of miles of main per unit of population served, usually in terms of 1,000 of population. Granted that the conditions found in different communities vary widely, the normal range may be said to fall between 1.5 and 2 miles per 1,000 of population. In large cities it is often necessary to convert the actual mains into the equivalent of 3-inch main for comparison. The number of meters per 100 of population, indicating the service development, will usually lie between 15 and 25, while the normal range of gas consumed will lie between 5,000 and 9,000 feet per capita.⁵⁵

Holding company control. Most readers are undoubtedly familiar with the consolidation movement that took place among American railways between 1890 and 1910, through which many of the smaller independent roads were grouped into large systems. A similar type of consolidation has taken place in the utilities field in the more recent past. As a result, there are today relatively few large holding companies, often with subholding companies, which control a very large part of the operating companies. This movement has, perhaps, been most pronounced in the electric light and power field. Even the United Gas Improvement Company, originally formed to control independent gas companies, and the American Water Works & Electric Company, which controls one of the largest groups of water companies in the United States, now receive the larger part of their revenues from the electricity business. Many of the large holding companies, which have had for the most part electric

⁵³ *Ibid.*, p. 346.

⁵⁴ There is a distinct tendency for the riding habit to increase with population. In large cities, approaching the expression CP^2 , where C is a constant for a given city and P its population. *Ibid.*, p. 348.

⁵⁵ *Ibid.*, pp. 346-349.

light and power subsidiaries, also control local traction and gas companies.

Some idea of the extent to which the holding company has been utilized in the public utility field may be obtained from the following brief descriptions of some of the largest gas and electric holding company systems in the United States.⁵⁶ An idea of the relative sizes of these systems can be most readily gained from the table of gross assets and revenues which follows:

GROSS ASSETS AND REVENUES OF LEADING ELECTRIC AND GAS UTILITY HOLDING COMPANY SYSTEMS

(Millions of Dollars)

	1930		1939	
	Assets	Revenues	Assets	Revenues
United Corporation Group				
Commonwealth & Southern Corp.	1,163	138	1,143	115
Niagara Hudson Power Corp.	784	79	622	85
United Gas Improvement Co.	827	108	838	112
Public Service Corp. of N. J.	701	138	699	134
Columbia Gas & Electric Corp.	716	96	682	100
Total	4,191	559	3,984	546
Electric Bond and Share Group				
American & Foreign Power Co., Inc.	987	79	756	59
American Gas & Electric Co.	483	69	539	78
American Power & Light Co.	801	87	831	101
Electric Power and Light Corp.	840	75	723	108
National Power and Light Co.	575	80	543	78
Total	3,686	390	3,392	424
Associated Gas & Electric Co.	922	84	1,040	129
North American Co.	841	134	940	122
Standard Gas & Electric Co.	1,205	172	766	93
United Light & Power Co.	574	88	587	91
Middle West Corp.	1,190 [†]	154	448	64
Cities Service Power & Light Co.	337	50	416	62
American Water Works & Elect. Co., Inc.	422	54	406	54
Engineers Public Service Co.	356	53	369	54
Grand Totals	13,724	1,738	12,348	1,639

¹ Deep Rock Oil Corp. and minor subsidiaries excluded in 1930.

[†] Prior to 1935 reorganization, Middle West Utilities Co.

[‡] Gross securities outstanding. Consolidated balance sheet not published.

*The United Corporation Group.*⁵⁷ This is not a single holding company system but a group of holding companies in which

⁵⁶ For a graphic chart of these intercompany relationships, see *Moody's Manual of Investments: Public Utility Securities* (New York: Moody's Investors Service, 1937), opposite p. a41.

⁵⁷ The data presented in the following discussion are for 1939.

the United Corporation holds substantial minority interests. The percentage of voting power held at the end of 1939 is indicated in parentheses after each company's name in the following brief description. This "investment company," chartered in 1929, was sponsored by J. P. Morgan & Company, Drexel & Company, and Bonbright & Company, for which reason it is sometimes called the Morgan Group. It has filed a plan with the Securities and Exchange Commission whereby it proposes to gain exemption from holding company status by reducing its investments to less than 10 per cent voting interest in present statutory subsidiaries.

Commonwealth & Southern Corporation (5 per cent) has greatly simplified its capital structure, so that ten subsidiaries form the bulk of its holdings, five in the South representing an integrated system covering Mississippi, Alabama, Georgia, and South Carolina, and five in the North, which are more profitable but scattered properties in Michigan, Pennsylvania, Ohio, Indiana, and Illinois.

Niagara Hudson Power Corporation (23 per cent), the largest distributor of electrical energy in the world, has been undergoing a continuous process of integration and corporate simplification, until it now has five principal operating subsidiaries, which control operations throughout most of the state of New York outside the New York City metropolitan area.

United Gas Improvement Company (26 per cent) controls 15 subsidiaries which, in turn, control about 31 companies. Its territory is largely concentrated in southeastern Pennsylvania and adjoining sections of Delaware and Maryland. Another important division is located in Connecticut; and there are a few scattered properties of minor importance. This company, familiarly known as *U G I*, is one of the holding companies which have substantial investments in a number of utilities not classed as subsidiaries. In spite of its name, which indicates its original character, it is primarily interested in electric operations. About 77 per cent of gross revenues are from electricity, 17 per cent from gas, and 6 per cent from traction and miscellaneous.

Public Service Corporation of New Jersey (14 per cent), through its two more important operating subsidiaries, serves most of the population of New Jersey with a variety of utility services, but chiefly electricity. A number of its properties are leased from other companies.

Columbia Gas & Electric Corporation (19 per cent) has 7 main operating divisions. Six are grouped around the cities of Cincinnati, Columbus, and Dayton, Ohio; Charleston, West Virginia; Pittsburgh, Pennsylvania; and Binghamton, New York. The seventh, the Seaboard Division, is a natural gas transmission system from the fields in West Virginia and Kentucky to the Atlantic seaboard states.

Electric Bond and Share Group. The corporation of this name was formed in 1905 and used as the medium through which General Electric interests controlled and aided in financing a large number of important properties. In 1924 General Electric divorced itself from the Electric Bond and Share Company. The percentage of voting power, noted after each of the following titles, runs somewhat higher than the holdings of the younger United Corporation.

American and Foreign Power Company, Inc., (42 per cent) controls utility properties in Cuba, Mexico, Panama, Guatemala, Costa Rica, Brazil, Chile, Argentina, Colombia, Venezuela, Ecuador, India, and the International Settlement in Shanghai, China. Of total operating revenues in 1939, 84 per cent were from electricity, 12 per cent from transportation, and the balance from gas, telephone, water, and ice.

American Gas and Electric Company (17 per cent) controls 10 operating companies, which operate in 1,654 communities located in nine states: New Jersey, Pennsylvania, Ohio, Indiana, Michigan, Virginia, West Virginia, Kentucky, and Tennessee.

American Power and Light Company. (21 per cent), with 14 principal subsidiaries, operates in 14 states: Wisconsin, Minnesota, Iowa, Kansas, Missouri, Nebraska, Texas, Arizona, New Mexico, Montana, Idaho, Washington, Oregon, and Florida. In 1939 about 86 per cent of revenues were from electricity, 8 per cent from gas, and the remainder from miscellaneous utility services.

Electric Power and Light Corporation (47 per cent) operates through 9 chief operating companies in 12 states: Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Colorado, Utah, Nevada, Wyoming, Oregon, and Idaho.

National Power and Light Company (47 per cent), through 5 principal operating subsidiaries, serves communities in 5 states: Alabama, the Carolinas, Pennsylvania, and Texas.

Associated Gas and Electric Company operates a large system of unconnected subsidiaries, most of which are located in the

eastern states from New York to Florida. This far-flung system with its great variety of securities has an unusually complex capital structure. Now in bankruptcy, it is peculiarly vulnerable under the provisions of the Public Holding Company Act.

North American Company has four groups of operating subsidiaries, three of which supply large and industrially diversified areas centering in St. Louis, Milwaukee, and Cleveland, and the fourth in industrial and agricultural areas in Kansas and Missouri. Substantial and generally profitable minority interests are held in a number of other companies, notably Detroit Edison and Pacific Gas & Electric.

Standard Gas & Electric Company operates in widely separated areas in some 19 states and Mexico. In 1939, 79 per cent of gross revenues were from electricity and 19 per cent from gas.

United Light & Power Company through its subsidiary holding and operating companies does business in 13 states. About 46 per cent of gross revenues are from electricity, 46 per cent from gas and by-products, and 8 per cent from traction and miscellaneous utility operations.

Middle West Corporation is the reorganized successor of Middle West Utilities Company, the former huge Insull holding company. Subsidiaries (50 per cent voting power basis) serve 1,752 communities in 15 states. Most of the areas served are rural, no important metropolitan centers being served. The present company is engaged in financial simplification of its system.

Cities Service Power & Light Company operates scattered electric and gas utilities in 14 states and Canada. In 1939, Cities Service Company, which owns a controlling interest, divested itself of control by transferring its holdings to be voted by independent trustees, but it still retains its beneficial interest.

American Water Works & Electric Company was originally interested in water supply and land promotion and still controls one of the largest groups of privately owned water works in the country. However, it now derives about 68 per cent of its operating revenues from electricity as against 25 per cent from water and seven per cent from other sources. Electric properties are largely concentrated in southwestern Pennsylvania and northern West Virginia, while its water works supply communities in 21 states and Cuba. Increasing emphasis on electricity is due partly to the tendency for municipalities to purchase the local water works.

Engineers Public Service Company serves a number of widely separated areas in eleven states. Electric revenues comprise 82 per cent, transportation 14 per cent, and gas and miscellaneous 4 per cent of gross revenues. Its chief subsidiaries are the Puget Sound Power & Light Company, the Virginia Electric & Power Company, and the Gulf States Utilities Company operating in Texas and Louisiana.

These interests of the various holding companies where scattered may be greatly altered by the enforcement of the provision in the Public Utility Holding Company Act of 1935 that requires the disposal of properties that do not form a single integrated operating system. The United Gas Improvement Company has since the end of 1939 arranged to sell its holdings of Connecticut Light and Power Company stock. The subject is discussed further in the next chapter.

Economy of operation through holding companies. There are many logical grounds for the preceding development. In the first place, economies in operation have been made possible. The central organization, or parent company, has been able, by virtue of the size of its investment, to employ skilled engineers and to centralize the management of subsidiaries in such a way as to lower overhead expenses. Furthermore, the various independent power units have been linked together in superpower systems. This interconnection has made possible the production of power at the most economic points and its distribution over wide areas, including large industrial centers. A further advantage has been a more economical utilization of plant. By securing a distribution of consuming areas, it has been possible to keep the plant operating at high capacity a greater number of hours of the day than does a local plant supplying a local community. An electric generating unit must stand ready to meet the "peak of the load." The holding company, by serving industrial areas and rural communities with the same generating equipment and by combining electric railway service with electric power service, is able to get a more uniform consumption of power throughout the day and hence to increase its "load factor." Furthermore, by combining wide areas through so-called "super-power hookups," the diversity factor is likewise increased.

Banker control facilitated by holding companies. The holding company device has also enabled the banker to control a large number of companies with a relatively small investment

of his own and to obtain on this investment a high percentage of return. Assume, for example, that there are four independent operating companies in a given area, each capitalized at \$2,000,000, represented by \$1,000,000 in bonds and \$1,000,000 in common stock. The owner of \$500,000 of the common stock of any of the independent companies, or 50 per cent thereof, would have effective control. A holding company is now formed with a capitalization of \$2,000,000, of which \$1,000,000 is nonvoting preferred stock, or bonds, and \$1,000,000 is common stock. The preferred stock and 49 per cent of the common stock are sold to the public; the other 51 per cent is held by the banker, who, it may be assumed, puts in \$510,000 of his own money. The \$2,000,000 so obtained is then used to acquire 50 per cent of the common stock of each independent company.⁵⁸ This situation gives the holding company control of each of the operating companies with combined assets of \$8,000,000. The banker, on the other hand, with 51 per cent of the common stock of the holding company, has control of it, and therefore controls the entire group of companies with only \$510,000 cash investment. In practice, this method of control is carried even further, and the purchase of the stock of operating companies is frequently obtained by the sale of collateral trust, or debenture, bonds at fixed rates of interest, or of preferred stocks with limited dividend rates. Any balance of earnings over the bond interest or preferred dividend requirements will accrue to the common stock equity of the holding company.

There are, indeed, obvious dangers from overextension through the device of the holding company. In the first place, pyramiding may go on to a point where the controlling bankers have little or no investment of their own in the properties. This means that bonds and preferred stocks of the holding company are without any genuine protection of a supporting common stock equity. Such securities are ordinarily classed as investments, yet they are often so far removed from the actual operating properties as to be highly speculative. The competitive extension of some holding companies has resulted in the purchase of operating companies at high prices. Whether or not the economies of centralization can overcome the additional capital

⁵⁸ No effort is made here to adjust the prices of the various securities to a reasonable and practical situation, as the main purpose is to explain the use of holding companies in concentrating the control of a number of independent companies in the hands of an individual by means of a small investment.

costs incurred through such purchases, time alone will tell. In any event, marked caution towards holding company securities is indicated by: (1) the unusually rapid expansion of these holding companies in the decade ending in 1930; (2) some instances of financial troubles growing out of the susceptibility of highly pyramided capital structures to even a moderate earnings recession;⁸⁹ (3) the institution of regulation by the Securities and Exchange Commission; and (4) threat of drastic reorganization under the Public Utility Holding Company Act of 1935, which limits the degree of pyramiding and the control of scattered non-integrated properties.

Difficulty of analyzing holding companies. The holding company also presents problems of analysis to the investor. Not only are the accounts of holding companies sometimes furnished in such a way as to cover up many of the points necessary for accurate analysis, but even where full information is given it is often very complex. The larger companies furnish various services, such as electric light and power, electric railway transportation, gas, and water. Operations are also carried on over wide and diversified areas that are subject to territorial variations and different population densities. The profits of the holding company are primarily derived from dividends received from participation in subsidiary earnings and occasionally from the purchase and sale of securities. It is necessary in analyzing the position of holding company securities to study the individual subsidiaries and the prospects of income from each. Earnings for the holding company as reported in the consolidated income account may be unavailable for dividends because of arrearages on subsidiary preferred stocks, or dividends may be collected from a few profitable subsidiaries when the consolidated report shows no net income available.

Position of public utilities as investments. Despite the objections that may be raised against holding company issues, public utility securities as a class must be accorded high standing. There are exceptions, to be sure, notably in the electric railway industry; but on the whole, the record of public utilities has been most favorable.

⁸⁹ For critical studies of the holding company see Bonbright, James C., and Means, Gardner C., *The Holding Company, Its Public Significance and Its Regulation* (New York: McGraw-Hill Book Co., 1932); and Waterman, M. H., *Financial Policies of Public Utility Holding Companies* (Ann Arbor: Bureau of Business Research, University of Michigan, 1932).

The stability of utility investments arises partly from the nature of the industry and partly from the existence of public control. The fact that utilities frequently operate under monopoly conditions eliminates many of the hazards of competition which encompass the ordinary industrial. Furthermore, utilities operate with a minimum of investment in inventories, a fact that enables them to escape the dangers of inventory fluctuation. The credit risk, with the somewhat analogous danger of order cancellation, is lacking in the public industry, a further reason for stability in earning power. Consumers are either required to pay cash, as in the case of electric railways, or else are rendered monthly statements that must be paid promptly; otherwise service will be discontinued. Finally, the necessity of the service which they render enables utilities to gauge demand over a period of years and to plan extensions in an intelligent manner.

In view of the stability of high-grade public utility operating company securities as investments, it is but natural that the bonds of such utility companies should in recent years have become legal as investments for life insurance companies, savings banks, and trust companies. As early as 1916 the Investment Bankers Association actively sponsored a uniform savings bank law designed to legalize investments in public utility bonds.⁶⁰ In 1932 about seventeen states—including New York, Massachusetts, Connecticut, and New Jersey—had so legalized public utility investments in one form or another.

⁶⁰ *Bulletin Investment Bankers Association of America*, 1916, Vol. V, No. 2. It is interesting to note the prerequisites here proposed in respect to the selection of legal public utility bonds. In substance these may be described as follows:

1. It is assumed that gross property values will normally be between 4 and 5 times gross revenues.
2. Net earnings should be $1\frac{1}{4}$ times charges.
3. On this basis, if it is assumed that a normal operating ratio will be between 50 and 60 per cent, charges should range between 23 and 30 per cent of gross.
4. The company should have at least \$500,000 of gross earnings, except telephone companies, which should have \$1,500,000.
5. Not more than 10 per cent of gross should be obtained from one customer.
6. Franchises should be satisfactory.
7. Investments should be limited to operating companies.
8. Securities should be a direct lien upon property, except where collateral consists of an issue of first mortgage bonds.

In more recent years, with a common investment standard for coverage of interest at 2 times, and operating ratios running normally between 60 and 70 per cent, charges would be expected not to exceed 20 to 15 per cent of gross revenues. Hydroelectric power companies, as described in the next chapter, have characteristically lower operating ratios and so would not conform to this relationship.

The yield on public utility bonds during the twenty years prior to 1928 averaged from 1 per cent to 1½ per cent higher than the yield on high-grade municipal and railroad bonds. There was, however, a distinct tendency toward a decrease in this differential. The growing popularity of utility bonds as investments, the crystallization of ideas on commission control, and the growth in the number of states legalizing public utility bonds for trust funds and savings banks investments were responsible for this tendency. During and since 1928, yields on public utilities and railroads have fluctuated to such a degree that first one group and then the other has been selling on the higher basis, while municipals have continued to sell on a distinctly lower basis than these other two classes. As a result of the relative stability of utility earnings during the trying period 1930-1934, the yields of the best-grade utility bonds have since that time fallen to the level of the choicest liens in any corporate division, although remaining higher than the return on tax-exempt municipal issues. (See Figure 3, page 57.)

While the discussion of specific kinds of utilities in the next two chapters will reveal what sharp distinctions exist among sub-types, an idea of their relative performance as compared with that of the other classes of corporation and foreign (corporate and government) bonds may be obtained from the following table of defaults:

BOND DEFAULTS IN THE UNITED STATES: 1924-1939*

(Amounts in Millions of Dollars)

Year	PUBLIC UTILITY		RAILROAD		INDUSTRIAL		REAL ESTATE		FOREIGN	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount	No.	Amount
1924-1930.....	185	333	50	348	293	598	290	271	4	36
7-Year Aver....	26	48	7	50	42	85	40	39	1	5
1931.....	96	202	30	213	216	444	705	557	28	632
1932.....	132	593	37	202	287	699	544	544	69	581
1933.....	109	364	76	1,088	238	482	312	416	127	1,105
1934.....	38	150	44	310	76	206	77	83	11	257
1935.....	24	149	53	762	39	92	31	47	5	9
1936.....	5	28	33	233	27	59	16	27	5	35
1937.....	8	58	26	141	14	124	15	13	3	67
1938.....	21	107	45	401	19	23	16	12	11	64
1939.....	9	118	7	72	21	51	13	27	3	13

* Standard Statistics Co., *Standard Bond Investments*, December 23, 1939, p. 876.

The amount of defaults should be read in the light of the total volume of debt in each class. These totals in 1930 were approximately as follows: public utilities, \$14,000,000,000; rail-

roads, \$11,900,000,000; industrials, \$10,000,000,000; real estate bonds, \$5,000,000,000; and foreign, \$7,000,000,000.⁶¹ The bulk of the utility bond defaults were in the traction field and among the holding companies. In the two worst years, 1932 and 1933, traction, or electric railway, defaults accounted for one half and one third of the totals, respectively. Defaults among operating electric light and power, manufactured gas, and telephone operating company issues have been negligible.⁶²

⁶¹ Clark, Evans, (Editor), *Internal Debts of the United States* (New York: The Macmillan Co., 1933). See also Harwood, E. C., "Wealth vs. Debts," *Barron's*, February 19, 1934.

⁶² Further analysis of these defaults may be found in Horton, Donald C., "Railway and Public Utility Bond Defaults, 1929-34," *Survey of Current Business*, July, 1935, pp. 16-18.

Investment Analysis of Special Classes of Utilities

On account of the wide differences found among the various types of public utilities, such as electric light and power, gas, telephone and telegraph, water, and electric railway companies, it will be necessary, in developing the subject of investment analysis as applied to utilities, to devote some independent discussion to each of the more important of these groups.

Electric Light and Power Securities

Recent growth. We shall consider first electric light and power companies. The growth of this industry has indeed been one of the outstanding phenomena of the present century. Some idea of the magnitude of this development may be had by reference to certain pertinent statistics regarding the industry, as shown in the following table:

RECENT GROWTH OF CENTRAL ELECTRIC STATIONS*

(Millions)

	1917	1927	1932	1937
Value of Plant and Equipment—\$.	3,060	9,297	12,664	12,941
Output—Kilowatt Hours	25,438	74,686	79,657	121,097
Total Revenues—\$	502	1,803	1,975	2,357

* *Statistical Abstract of the United States*, 1939, p. 381.

In 1902 the capital invested in this industry stood at \$639,000,000; in 1937 the value of plant and equipment (a substantially comparable figure) had reached the huge total of \$12,941,000,000. These figures might be supplemented at length by others

which would serve only to support the idea already conveyed that this industry has enjoyed an exceptionally prosperous and rapid expansion since the turn of the century.

Causes for recent development. The principal causes for this growth are already familiar to most of us. Electricity has rapidly supplanted gas and kerosene as a means of illumination for the home, not only because of its greater convenience, but also because of greater safety and economy. Industrial uses for electricity have likewise been widely extended. Many manufacturing concerns that formerly operated their own independent power plants have found it more economical to abandon these and to purchase electric power from central stations.¹ Industrial use of power has been further accelerated by reason of the ease with which individual motors can be connected directly with the operating machines in a factory. In this way electric energy is transmitted through the plant by means of wires and transformed into effective driving power directly at the machine. The use of cumbersome belts and shafting, with consequent loss of power through friction, is thus eliminated.

The domestic uses for electric power are also being rapidly developed. The modern housewife today does a large portion of her work by electricity. The washing machine, vacuum cleaner, electric refrigerator, electric percolator, flatiron, and ironer are some of the more common household devices requiring electric current. The development of the radio industry has likewise increased the use of electrical current.

Despite the phenomenal growth that has already taken place in the electric light and power field, it appears that the industry has by no means reached its limit of expansion. Quite independent of the normal development that may be expected to take place as population increases, it can hardly be assumed that the *per capita* consumption of electricity has reached its limit. It is estimated that at present only 75 per cent of the industrial power load is electrically generated, and about 75 per cent of the population of the United States live in electrically lighted dwellings.² Furthermore, only about one fifth of all farms are served

¹It is estimated that in 1904 more than 72 per cent of the electric energy consumed by industrial companies of the United States was generated in their own plants. In 1930 about 50 per cent came from such private generating plants. See *Public Utility Points* (New York: Bonbright & Co., 4th ed., 1931), p. 2; *Electric Light and Power Companies of the United States* (New York: Bonbright & Co., 8th ed., 1931), p. v.

²*Electric Light and Power Companies of the United States* (New York: Bonbright & Co., 8th ed., 1931), p. v; *Electrical World*, Jan. 13, 1940, p. 100.

by central stations; expansion in this direction is handicapped by the large investment in transmission required to reach such business.³ There is also an opportunity for extensive electrification of railroads. Prospective growth has an important bearing upon the future investment status of this industry.

Stability of earnings in electric light and power investment. From the standpoint of stability of earnings, the electric light and power industry is especially favorable to the investor. The annual combined gross revenues of central stations have, until recently, shown a remarkable continuous growth.⁴ Defaults among electric light and power operating company securities are especially low. As previously suggested, for a period of thirty years prior to World War I, the risk of receivership per \$100 of securities outstanding for industrial concerns was \$2.07; for railroads, \$1.84; and for public utilities, \$.37. Later figures show that during the six-year period 1924 to 1930, 185 issues of public utility bonds, having a total value of \$333,061,964, were defaulted; while 50 issues of railroad bonds, amounting to \$348,015,490, were defaulted. In the four depression years 1931-1934, 187 defaulted railroad issues totalled \$1,813,126,348, while 375 defaulted utility issues amounted to \$1,309,035,684. The ratio of defaulted public utility bonds to total outstanding public utility securities was somewhat lower than the ratio for railroads, since during this period the volume of public utility securities gained rapidly, and in 1930 exceeded that of total outstanding railroad securities by approximately \$2,000,000,000.⁵ The more recent failures in the utility field have been largely electric railways and holding companies. The latter would be regarded by some as financial, rather than utility, corporations.

Operating companies distinguished from holding companies. In any analysis of the investment status of electric light and power companies, we must first distinguish between operating companies and holding companies. For the latter it is some-

³ *National Electric Light Association Proceedings*, 1930, Vol. 87, p. 1426. The promotional efforts of private companies plus the Federal Rural Electrification Administration program about doubled the number of farm users during the 1930's.

⁴ As shown in the table on page 401 above. In 1912 the total gross revenues were but \$502,000,000; in 1902, only \$287,000,000.

⁵ Bonds in default were compiled by Standard Statistics Company. Total securities were based on estimates of Clark, Evans (Editor), *Internal Debts of the United States* (New York: The Macmillan Co., 1933), pp. 96, 143.

times difficult to get all the specific information necessary to make as detailed an analysis as is desirable. Particularly is it true that the presence of gas, electric railway, hydroelectric, and steam generating plants, all under control of the same holding company, makes it impossible to use the same unit basis for comparative purposes, as is sometimes possible with individually operated companies.⁶ There is, in fact, a wide difference between operating companies and holding companies, so far as investment analysis is concerned. Our first attention will be given to the analysis of operating companies: that is, to those concerns that operate directly the properties they own, as opposed to the holding company, which controls a group of subsidiary operating companies.

Further classification of operating companies: steam versus hydroelectric generation. Even with independently operated electric companies, it is necessary properly to classify the company which it is desired to analyze before the statistics available have real significance. The first classification generally made is according to the method of generation. There are, for instance, hydroelectric, steam generating, and combined hydroelectric and steam generating plants. The operating expenses of hydroelectric plants are naturally very much lower than those of steam generating plants. For the former the cost of fuel and the attendant labor of handling it are avoided. On the other hand, it usually costs from two to four times as much to build a hydroelectric plant as it does to build a steam plant with equal capacity. Thus, while the operating expenses of a hydroelectric plant are appreciably lower, investment carrying charges, interest, taxes, and sometimes depreciation are decidedly higher.

There are other cost factors in hydroelectric generation that must be kept in mind. Frequently the source of the water power is far removed from the consuming area, and thus the current must be transmitted over a considerable distance. This means a loss in power and an additional investment of funds in transmission lines. Furthermore, companies relying on water power usually find that there is a wide difference between the power furnished at different seasons of the year. For this reason the hydroelectric plant is frequently supplemented by a steam plant that can carry the load during periods when water power is insufficient. Such additional investment, while necessary, is

⁶ See also page 412, for other difficulties of analysis. The problem will become clearer after the subsequent section on holding company analysis.

frequently unprofitable because it is used for only a relatively short time during the year. When one considers the improved efficiency of steam generating equipment, whereby the consumption of coal per kilowatt hour has been reduced from twelve to less than two pounds, the present advantages favor the modern steam plant as a low-cost, steady producer, except where the water power is located in an especially favorable situation.⁷

The hydroelectric station is often used economically in super-power areas, or by large holding companies, where it is combined with steam stations. Under such systems power is normally distributed over wide areas, and the power generated by a hydroelectric unit can be utilized without heavy additional transmission investment by combining it with steam generating plants, which means a pooling of needs for auxiliary steam generation. Under such conditions, also, the disadvantages arising from variations in the amount of water power furnished are likewise minimized.⁸

Classification by market. Another basis for classifying electric light and power companies is the disposition of product. Some plants merely generate power and dispose of it on a wholesale basis to distributing companies. Often in financing large generating facilities, especially when the power is to be sold to more than one company, a separate company whose only business is the manufacture of power is organized. Such a company does its own independent financing and, when completed, either leases its property to a distributing company or contracts with one or more of the distributing companies to take its entire output.⁹ Other companies, such as the New York & Queens Electric Light & Power Company, do little or no manufacturing, but

⁷ See *National Electric Light Association Proceedings*, 1930, Vol. 87, p. 1425.

⁸ Data for January 1, 1940, place our developed water power at 18,500,000 horsepower. There is no figure for potential water power which is exactly comparable with that for developed power, but it is estimated that if the resources of the country were completely developed, the installed capacity would amount to 80,000,000 or more horsepower. Federal Power Commission, *Installed Water Power in the United States* (1940).

Most of the undeveloped water power is probably such that it cannot be developed and transmitted to a market without incurring capital costs that would make it more expensive than steam power.

⁹ Among the more important of such generating companies may be listed:

Chicago District Electric Generating Co.
Montaup Electric Co.
Pennsylvania Water & Power Co.
Safe Harbor Water Power Co.

purchase their power and retail it. Such a company with a lower investment should show a higher plant turnover and a higher operating ratio than the ordinary company. The cost of purchased power will appear among operating expenses.

The generating company that sells its entire output at wholesale is frequently formed and controlled through stock ownership by the companies which are its customers. Typically it represents a large development designed to produce cheap power, taking advantage of the pooled demands of its creators. The financial strength of such a company will depend upon its contractual relations, which often bind its customers to purchase a certain amount of power so that, in effect, they are the guarantors of the vendor's fixed charges. Since there is no direct contact with the ultimate consumer and consequently no franchise, the legal position and the vulnerability of the power contracts of such a company should be carefully analyzed. The great majority of electric power and light companies, however, both generate and distribute.

Utilities might be further classified according to the nature of the territory they serve, the types of customers to which they furnish power, or the nature of their capital structure. Such classification will be omitted here and the influence of such differences noted in our later analysis.

Analysis by use of ratios. The first type of company to be analyzed is the operating company. The analysis will be facilitated by the study of certain significant ratios with respect to operations and financial condition and the comparison of such ratios for different companies. The problem is not unlike that which existed in connection with certain groups of industrials. Operating conditions are sufficiently similar throughout the field to permit the use of common relationships by which the figures of various companies may be compared.

Capitalization and kilowatt capacity. Let us consider first the matter of capitalization and kilowatt capacity. The kilowatt capacity of a plant represents the rate at which the plant is capable of generating electric energy. Since electric energy is its stock in trade, the maximum of gross revenues it can produce will depend on its possible output. The lower the capitalization of a given plant in relation to possible output, the easier it should be to earn a return on that capitalization, other things being equal. The combined generating capacity of electric power and light companies at the end of 1937 was 36,481,107

kilowatts, while the total investment in plant and equipment of these companies was \$12,900,000,000. The average capitalization per kilowatt of generating capacity was thus about \$355.¹⁰ Unfortunately, the usefulness of this average is impaired for analytical purposes by the fact that it includes both steam and hydroelectric plants, and the investment required by the latter per kilowatt of capacity is ordinarily very much higher than for the former. Nash states that the cost of urban steam electric power properties is likely to range between \$250 and \$450 per kilowatt of rated generating capacity.¹¹ The lower limit will be approached in smaller cities, where the business is reasonably compact and where no elaborate underground distribution is required. In larger communities, where expensive underground transmission and substations are required, the upper limit will be reached. In other localities requiring an unusually complicated system or in sparsely settled outlying territory, the unit cost may exceed the upper limit by a considerable margin.

The customary distribution of this aggregate investment over the various items involved is shown in the following table:¹²

<i>Class of Property</i>	<i>Normal Range of Percentage</i>
Power Station	40 to 50
Transmission Lines and Substations	0 to 12
Distribution System, Overhead	20 to 35
Distribution System, Underground	0 to 20
Service Connections and Meters	12 to 18
Miscellaneous Buildings and Equipment	2 to 5

Station and distribution facilities. The distinction between investment in station and in distribution facilities is an important one. Although it is true that the service actually sold by electric light and power plants is kilowatt hours produced and delivered, nevertheless it is also true that a company which serves a densely populated area can produce and sell a given amount of current with a lower investment in transmission equipment than can a company which serves a sparsely inhabited area. The *production and delivery cost* is higher in the latter case than in the former. For this reason it is to the advantage of the company to minimize its investment in trans-

¹⁰ United States Dept. of Commerce, Bureau of Census, *Census of Electrical Industries, 1937*, pp. 9-10.

¹¹ Nash, L. R., *The Economics of Public Utilities* (New York: McGraw-Hill Book Co., 1931), p. 343.

¹² *Ibid.*, p. 344.

mission lines as compared with investment in plant generating capacity. No set rules can be laid down as to the proper proportion of total investment to be allocated to plant and transmission, although it is generally accepted that, in an average case, the plant investment equals approximately distribution investment. That is, the average company should not be required to invest much more than one dollar in distributive facilities for each dollar invested in station equipment.

Per customer and per capita investment. The capital investment of an electric light and power company may for purposes of investment analysis be reduced to a per customer and a per capita basis by dividing the capital investment of the company by the number of customers actually connected, and by the population of the area served, respectively. Per capita investment (which is the latter ratio) furnishes only rather general information when used alone. When used with per customer investment, it is more illuminating. For example, the fact that per capita investment has been increasing may indicate: (1) more customers per unit of population; (2) larger utilization per customer; or (3) both. Increased per capita investment, however, does not indicate which of these three factors is effective nor the degree of effectiveness. By comparing per capita investment with per customer investment, however, one is able to draw further deductions. Thus, if both per capita investment and per customer investment have increased, all of the per capita increase cannot be accounted for by an increase in the number of customers. If the per customer increase in investment is proportionately greater than per capita increase in investment, the factor of increased utilization has played a larger part than if per customer increase in investment had been proportionately less than the increase in per capita investment.

The use of these two ratios may be effective also in gauging the future development of a company, although care must be used in such an analysis. Thus, if the per capita investment of a company shows a rapid increase, this may indicate that the company will, in the near future, be in a position to increase the number of users (or customers) with a less than proportionate investment per new customer. On the other hand, after an initial program of development has been carried out, during which both per capita and per customer investment increases, the former ratio may remain more or less constant while per customer investment decreases. These results are due to the conversion of

potential customers to actual customers. Finally, it may be necessary, after intensive development of the area, to increase per capita investment without decreasing correspondingly per customer investment, on account of the greater use made of facilities by existing customers. In any analysis of this kind, however, it is necessary to consider the nature of the demands placed on the company by its customers, the manner in which the load factor is affected, and the extent to which the diversity factor is changed.

Operating ratios. The significance of operating ratios is much the same here as in the case of industrials, except that there is likely to be a somewhat greater difference in this ratio among different public utility companies than is the case with industrials. In the first place there is usually a wide difference between the operating ratios of hydroelectric companies and steam generating companies. A ratio of from 40 to 60 per cent is probably the normal ratio for the former class, although in some cases, especially where the company sells its current largely at wholesale, its operating ratio may be very much under the suggested limits. Steam generating plants, on the other hand, normally have a somewhat higher ratio, ordinarily ranging from 65 to 75 per cent, although the question whether the company sells its product at wholesale or retail will again affect the ratio. Companies that do largely a wholesale business naturally have the lower ratios.

Capital structures, earnings, and charges. It is always of great importance, in analyzing the investment status of the bonds of a particular company, to compare these interest charges with earnings available for interest payments. It is customary for the investor to expect the company to have earned its interest charges at least two times. A bond on which interest is not earned at least twice would in all probability be considered somewhat speculative. Some of the stronger companies earn their interest charges from $2\frac{1}{2}$ to 3 times.

The relation of bonded debt to assets is closely correlated with the safety factor of a bond as measured by earning capacity, because in the utility field a close relationship exists between normal earning power and assets. If a utility earned 6 per cent upon every \$100 of assets and could borrow at 4 per cent with bonds, then it would be possible to have a funded debt equal to 75 per cent of the assets and still show charges earned twice over. Four per cent of \$75 equals \$3.00 interest, which is one half of 6

per cent upon each \$100. Utility financing is not ordinarily regarded as conservative when the debt exceeds 60 per cent of the assets; or, stated in the reciprocal form, assets are expected to be at least $1\frac{2}{3}$ times the outstanding debt. The strongest operating companies are likely to show assets running two times debt and charges earned from $2\frac{1}{2}$ to 3 times in ordinary years.

The same comparison that is made between the net earnings and fixed charges may be made between the earnings available and preferred dividend requirements. Usually preferred stock issues are limited to less than one-half of the total stock outstanding. If preferred stock is to achieve investment standing the combined preferred dividends and interest charges should show earnings coverage of two times. The rarity with which this "over-all" standard is met explains why utility preferred stocks are generally regarded as of second-grade quality. An interesting problem involving the relation of earnings and preferred dividend requirements arises out of the use of consolidated income accounts in connection with holding companies, and will be treated later.¹³

Earnings per share of common stock. It is impossible to say what a company should earn per share on its common stock, because the per share figure depends entirely upon the number of units into which the company has seen fit to divide the common equity. However, a fairly definite relationship exists between the market prices of common stocks of utility companies and per share earnings at any given time. We may lay down the broad rule that the stock of an electric light and power company, unless influenced by special considerations, such as merger possibilities, will normally sell at a price between 12 and 18 times earnings per share after depreciation, or possibly between 8 and 12 times earnings per share before depreciation. Such a ratio depends upon a common belief that future earnings will resemble current earnings closely. In a period of exaggerated optimism, constantly increasing earnings will be imagined, and higher multiples applied to earnings in order to arrive at market value. In a period of depression, a pessimistic outlook will lead to the belief that losses of business and rate reductions will continue, and consequently lower ratios will be used.¹⁴ At any time, differences in

¹³ See p. 420.

¹⁴ The investor should recognize differences in the market price to earnings relationship from time to time and examine the average relation. This measure is a useful test and starting point for a study of the value of common stocks.

the relationship of market price to current earnings may be explainable in terms of differences of outlook for earnings changes among the companies studied.

Other market factors. While a complete list of factors which may cause the market to capitalize earnings at a high or low rate is impossible, some of the more important items may be given here so that in making his appraisal the investor may weigh their probable importance.

1. *Maintenance and depreciation.* Some companies are more conservative than others in their maintenance and depreciation policy; therefore their reported earnings for common stock are capitalized at a higher ratio than the similar net income of more niggardly companies.

2. *Ratio.* Companies whose rates to customers are relatively high are more likely to be ordered by the regulatory commission to reduce them. The future net income of such companies may be less than the amounts currently reported.

3. *Growth possibilities.* Location in a territory with expansion possibilities is desirable because it offers opportunities for profitable retention of earnings. Utilities generally retain less of their earnings than industrials. They are more likely to finance through new stock issues. The rights to subscribe may be fully as valuable to the stockholder as the accumulation which would result from retained earnings. Often the new stock can be paid for with dividends, thereby giving about the same investment results as earnings retention.

4. *Type of customer.* Where the bulk of the revenues is from industrial consumers whose business fluctuates greatly from year to year, investment risk is increased. A high proportion of domestic revenues is usually favorable to stability.

5. *Threat of municipal competition.* In connection with the development of its water power projects in various parts of the country, notably in the region of the Tennessee Valley Authority, the Federal Government has encouraged municipalities to go into the power business by offering loans for either the purchase of existing plants or the construction of duplicate facilities. Federal loans at a low rate of interest have been made available with a substantial portion of the total cost an outright gift by the Public Works Administration. Where faced with such a possibility, the private power company may be forced to sell for less than the fair book value of its plant. In general, this threat is most serious for companies operating in the vicinity of

Federal hydroelectric developments but is possible in other communities.

The more important of the Federally financed electric projects in competition with the privately owned electric industry in the United States number 154, and represent an estimated ultimate installed capacity of 6,690,000 kilowatts and aggregate \$1,643,000,000 in governmental expenditures. If to this is added other Federal projects scheduled for early development but not yet actively under way, the total would be 7,300,000 kilowatts or more than 20 per cent of the total installed capacity of the entire privately owned industry, and an estimated total cost of \$1,895,000,000.

To the extent that such investment duplicates private investment, it tends to destroy the value of the existing private facilities. The electric industry is a growing one, however, and much of the additional capacity can be absorbed without such losses to investors if the Government decides to minimize destructive competition.

6. *Merger possibilities.* A stock might enjoy a favorable price because of a prospective offer of more than the normal market value. Holding companies often made attractive exchange offers during their expansion in the 1920's.¹⁵ The higher value of the securities offered by the purchasing corporation might be due to superior marketability or greater prestige than that enjoyed by the vendor corporation rather than to greater earning power. However, the purchaser might offer a favorable price because he saw an opportunity of developing increased earnings by more efficient operation. Sometimes exorbitant prices were paid as a result of rivalry between holding company promoters.

Analysis of holding companies more complex.¹⁶ Analysis of individual operating companies is simpler by far than analysis of the holding company which has a complex capital structure and consists of a group of more or less heterogeneous operating companies—some steam generating, some hydroelectric, others engaged in the manufacture of gas, and still others, in furnishing

¹⁵ In the acquisition of the entire common stock of the Mississippi River Power Company by the North American Company, stockholders of the former were offered the option of \$100 or 1½ shares of the latter company's stock for each share held. *Commercial and Financial Chronicle*, Vol. 121, p. 1909. The common stock of the Mississippi River Power Company sold as low as \$37 a share in 1925 before a merger was considered.

¹⁶ Holding companies are also discussed on pp. 390 to 397.

electric transportation. The fact that nearly all holding companies are composed of operating companies of a diverse character makes it difficult to go beyond a financial analysis. At least the average investor, who does not have at his disposal all the data regarding the individual companies, must content himself with an analysis based largely upon the consolidated accounts of the holding company.

Analysis of holding company investments. The importance of consolidated accounts in an analysis of holding company investments leads first to a brief discussion of consolidated statements and their significance to the investor. The purpose of the consolidated statement is to show the combined assets and liabilities and the operating results of a group of companies. The process of account consolidation consists of combining the asset and the liability accounts of all the companies of the group into one balance sheet, and of repeating the procedure with the income accounts, eliminating in both cases all intercompany items. The consolidated assets include the property of all the companies, exclusive of intercompany claims, and the liabilities include only debts and securities held by outsiders.

Suppose, for example, that we have two companies, *A* and *B*, and that 90 per cent of each company's common stock is owned by holding company *H*. The independent statements of all three companies, we shall assume, are as illustrated in the following tables:

BALANCE SHEET—COMPANY *A*

<i>Assets</i>		<i>Liabilities</i>	
Plant and Equipment.....	\$500,000	Capital Stock.....	\$500,000
Inventories.....	200,000	Accounts Payable.....	250,000†
Accounts Receivable.....	250,000*	Surplus.....	250,000
Cash.....	50,000		
	<hr/>		<hr/>
	\$1,000,000		\$1,000,000

BALANCE SHEET—COMPANY *B*

<i>Assets</i>		<i>Liabilities</i>	
Plant and Equipment.....	\$700,000	Common Stock.....	\$300,000
Inventories.....	200,000	Preferred Stock, 7%.....	300,000
Accounts Receivable.....	100,000	Bonds, 6%.....	300,000
Cash.....	200,000	Accounts Payable.....	150,000*
		Surplus.....	150,000
	<hr/>		<hr/>
	\$1,200,000		\$1,200,000

BALANCE SHEET—COMPANY II

<i>Assets</i>		<i>Liabilities</i>	
Investments.....	\$720,000‡	Common Stock	\$400,000
Accounts Receivable.....	180,000†	Preferred Stock, 6% .. .	300,000
Cash.....	250,000	Bonds, 6% .. .	300,000
		Accounts Payable.....	100,000
		Surplus.....	50,000
	<hr/>		<hr/>
	\$1,150,000		\$1,150,000

* Includes \$50,000 owed to A by B.

† Includes \$50,000 owed to II by A.

‡ Includes \$450,000 of common stock of A and \$270,000 of common stock of B, both carried at par. The balance of this stock is owned by the public.

It is now desired to consolidate these statements and to eliminate all intercompany items.¹⁷ We shall start first with the

¹⁷The mechanics of this operation may be illustrated by telescoping the three statements and eliminating intercompany items in the following manner:

<i>Assets</i>		<i>Eliminate Inter- company Items</i>	<i>Amount at Which Carried as Con- solidated B. S.</i>
Plant and Equipment:			
A	\$500,000		
B	700,000		\$1,200,000
Inventories:			
A	200,000		
B	200,000		400,000
Receivables:			
A	250,000	\$50,000	
B	100,000		
H	180,000	50,000	430,000
Cash:			
A	50,000		
B	200,000		
H	250,000		500,000
Investments:			
H	720,000	720,000	
			<hr/>
			\$2,530,000
<i>Liabilities</i>			
Capital Stock:			
A	\$500,000	\$450,000	
B	300,000	270,000	\$80,000
H	400,000		400,000
Surplus:			
A	250,000		
B	150,000		
H	50,000		450,000
Preferred Stock:			
B	300,000		300,000
H	300,000		300,000
Bonds:			
B	300,000		300,000
H	300,000		300,000
Accounts Payable:			

capital structure of the holding company as shown by the combined statement. Our first step is to state what stocks and bonds are owned by the public. These amounts we find to be as follows:

Common Stock of <i>H</i>	\$400,000
Preferred Stock of <i>H</i>	300,000
Bonds of <i>H</i>	300,000
Bonds of <i>B</i>	300,000
Preferred Stock of <i>B</i>	300,000
Common Stock of <i>A</i> and <i>B</i> Held by Public . .	80,000

We may proceed by combining the asset accounts and liabilities of the consolidated group, and by restating its capital structure in the customary form, as follows:

COMBINED OR CONSOLIDATED BALANCE SHEET—COMPANY *II*

Plant and Equipment	\$1,200,000	Preferred Stock 6%	\$300,000
Inventories	400,000	Common Stock	400,000
Accounts Receivable	430,000*	Bonds	300,000
Cash	500,000	Bonds of Subsidiaries	300,000
		Subsidiary Preferred Stocks	300,000
		Minority Interest	120,000†
		Accounts Payable	400,000*
		Surplus	410,000
	<hr/>		<hr/>
	\$2,530,000		\$2,530,000

* Excludes \$50,000 owed *A* by *B* and \$50,000 owed *II* by *A*. As a result of this process, we are able to show the composite situation as it affects an outside investor. (We have shown only the actual assets of the group of companies and the manner in which participation therein is accorded. This has been done by the complete elimination of all intercompany items, such as debts owed entirely within the group, or capital stock of the subsidiaries owned by *II*.)

† Minority interest in the term applied to the common stock of subsidiaries outstanding in the hands of the public. It includes the par or stated value of such stock plus its proportionate share of the surplus. The total is arrived at as follows:

	Stock	Surplus	Total
Minority Stock of <i>A</i>	\$50,000	\$25,000	\$75,000
Minority Stock of <i>B</i>	30,000	15,000	45,000
Total	<hr/> \$80,000	<hr/> \$40,000	<hr/> \$120,000

Consolidation of income accounts. The process of consolidating the income accounts of these concerns is effected in much the same way. Let us proceed on the assumption that the independent income accounts of the three companies for the year ended December 31, 1940, were as follows:

COMPANY *A*

Gross Revenues	\$150,000
Operating Expenses	100,000
Net Earnings	<hr/> \$ 50,000
5% Dividends on Stock	25,000
Surplus for Year	<hr/> \$ 25,000

COMPANY *B*

Gross Revenues	\$180,000
Operating Expenses	110,000
Available for Charges	<hr/> \$ 70,000
Interest on Bonds	18,000
Net Earnings	<hr/> \$ 52,000
Dividends on Preferred	21,000

INCOME ACCOUNT FOR *H*

Dividends Received.....	\$40,500*
Miscellaneous Expenses.....	2,000
Available for Interest and Dividends..	38,500
6% on Bonds..	18,000
	\$20,500
6% Dividends on Preferred.....	\$18,000
Balance for Common and Surplus....	\$ 2,500
Earned per Share Common..	\$.62½

* Including \$22,500 from *A* and \$18,000 from *B*, these amounts constituting 90 per cent of the dividends of these companies

Before an attempt is made to consolidate the earnings of these companies, several points should be clearly understood. In the first place, it should be borne in mind that Company *H*, which owns 90 per cent of the stock of *A* and *B*, really has an equity in the surplus earnings of these companies, to the extent of 90 per cent of \$25,000 and \$11,000 respectively, in addition to the 5 per cent dividend received on its stockholdings. In other words, the true earnings of *H*, based on its proportionate share of the surplus of *A* and *B*, would be determined as follows:

Dividends Received.....	\$40,500
Plus 90% Undistributed Earnings of <i>A</i> and <i>B</i> ..	32,400
Real Earnings of <i>H</i>	\$72,900
Less Miscellaneous Expenses..	2,000
Available for Bond Interest.....	\$70,900
Less Bond Interest.....	18,000
	\$52,900
Less Preferred Stock Dividends..	18,000
Net Earned for Common....	\$34,900
Net per Share.....	\$ 8.73

Thus we find that net per share of common really amounts to \$8.73 instead of 62½ cents.

The second point of interest is that the bonds and preferred stocks of the holding company have a claim on operating earnings which is preceded by the claims of the bonds and the preferred stocks of the operating companies, and so are only on a parity with their common stocks. This subordinate position is caused by the fact that the principal source of income of the holding company is the dividends received from its stockholdings in the subsidiary companies. Accordingly, there are no

earnings for its bonds until obligations of the underlying companies prior to their common stocks have been met and dividends have been declared on such stocks. This situation will appear in the consolidated statement of earnings that we shall now present:

CONSOLIDATED INCOME ACCOUNT—COMPANY *H*
AND SUBSIDIARIES

Year Ended December 31, 1940

Gross Revenues.	\$330,000
Operating Expenses	210,000
Net Available for Interest.	\$120,000
Interest on Subsidiary Bonds.	18,000
	<hr/>
	\$102,000
Dividends on Subsidiary Preferred Stocks	21,000
	<hr/>
Net from Subsidiary Operations.	\$ 81,000
Proportion of Net Belonging to Subsidiary Common Stocks Held by Public.	8,100
	<hr/>
Balance Available for <i>H</i>	\$ 72,900
Less Expenses.	2,000
	<hr/>
	\$ 70,900
Interest on <i>H</i> 's Bonds.	18,000
	<hr/>
	\$ 52,900
Dividends on <i>H</i> 's Preferred Stock.	18,000
	<hr/>
Available for <i>H</i> 's Common Dividends and Surplus.	\$ 34,900

The form used above is substantially that customarily used. It shows the proper order in which each charge should be arranged and enables the student to grasp more clearly the results of holding company accounts. The income account (page 418) of the American Water Works & Electric Co., Inc., for the years 1938 and 1939, will serve to show the form in which the investor may reasonably expect to find income account data shown on a consolidated basis.¹⁸

Financial analysis of holding companies. In analyzing the investments of holding companies in the public utility field, we again find that certain specific ratios are available which tell the story in part, and that further study should always be given to more general factors, such as management, territory served, and composition of operating companies. The most significant ra-

¹⁸Taken from *Poor's Utility Manual*, 1940.

CONSOLIDATED INCOME ACCOUNT—AMERICAN WATER WORKS
AND ELECTRIC CO.

(Years Ended December 31)

	1939	1938
Operating Revenues	\$53,590,457	\$50,004,300
Non-operating Income	626,696	586,492
Gross Earnings.....	\$54,217,153	\$50,590,792
Operating Expenses.	18,416,018	17,879,879
Maintenance.....	3,822,879	3,758,881
Taxes (other than Federal Income)	5,784,144	5,227,462
Federal Income Taxes.....	1,991,431	1,372,604
Reserved for Renew. Retire. & Deple..	4,713,119	4,758,851
Amort. Electric Plant Adjustments	806,700	
Gross Income	\$18,682,862	\$17,593,115
Deductions—Subsidiaries:		
Interest.....	7,819,302	7,883,279
Interest charged to Construction (cr.)....	78,118	147,298
Amortization of debt discount and exp. . .	852,236	841,212
Preferred dividends.....	5,509,004	5,737,101
Minority Interest.....	454	347
Miscellaneous.....	167,768	180,253
Total Deductions.....	\$14,270,646	\$14,494,894
Balance.. . . .	\$ 4,412,216	\$ 3,098,221
Deductions—American Water Works & Electric Co., Inc.:		
Interest.....	878,036	892,719
Amortization of Debt Disc. & Exp.	92,921	92,921
Miscellaneous.....	14,642	17,496
Total.....	\$ 985,599	\$ 1,003,136
Net Income.....	\$ 3,426,617	\$ 2,095,085
Preferred Dividends.....	1,200,000	1,200,000
Common Dividends.....		
Surplus for Year.....	\$ 2,226,617	\$ 895,085
Surplus from preceding year.	16,555,042	19,008,525
Total.....	\$18,781,659	\$19,903,610
Surplus charges (net)*.....	164,586	3,348,568
Final Surplus.....	\$18,617,073	\$16,555,042

* Greater detail in original report.

tios are: operating ratio, ratio of depreciation and maintenance to gross revenues, number of times charges are earned, the relation of bonded debt to property investment, earnings per share

of common stock, the relation of gross revenues to property investment. There should also be a study of any investments in companies not included in the consolidated picture.

Operating ratios. The operating ratio of the normal holding company will currently run somewhere between 65 and 75 per cent, although in companies with a considerable proportion of hydroelectric properties the ratio is likely to be much lower. Whenever a ratio is found below 65 per cent, a check should be made for water or hydroelectric properties; if the ratio is above 75 per cent, the possibility of traction property should be investigated. The following table shows the number of dollars of operating expenses per \$100 of gross revenues (operating expenses include taxes and depreciation):

OPERATING RATIOS OF LEADING UTILITY
HOLDING COMPANIES: 1929, 1939

<i>Company</i>	<i>1929</i>	<i>1939</i>
American Gas & Electric Co.....	55.2	66.3
American Power & Light Co.....	54.7	63.4
American Water Works & Electric.....	57.9	63.3
Associated Gas & Electric Co.....	57.6	71.8
Columbia Gas & Electric Corp.	65.1	75.6
Commonwealth & Southern Corp.....	55.0	64.6
Consolidated Edison of N. Y.	64.3	77.7
Electric Power & Light Corp.....	58.9	72.2
Engineers Public Service Co.	67.5	66.9
Middle West Corp.	64.6*	66.5
National Power & Light Co.....	62.6	66.2
Niagara Hudson Power Corp.....	54.6	71.9
North American Co.....	62.3	71.9
Pacific Lighting Corp.....	67.1	76.9
Public Service Corp. of N. J.....	69.5	70.7
Standard Gas & Electric Co.....	63.6†	67.4
United Gas Improvement Co.	60.0**	63.0
United Light & Power Co.....	64.8	74.6
Medians.....	62.4	69.6

* Gross operating revenues include merchandise and job-work earnings but eliminate non-utility earnings.

† Utility operations only

** For utilities only

The operating ratios have the same significance here as in operating companies and will not be further analyzed at this time.

Depreciation and maintenance. The amount of depreciation and maintenance allowed by a company is of vital importance to the investor. It is also true that the real test as to whether adequate reserves have been set aside for depreciation lies in a physi-

cal examination of the property itself. Inasmuch as such a test is rarely practicable, it is generally necessary to rely on such available records of these expenditures as are found in the income accounts and balance sheets of the corporation. The average major holding company in the electric light and power field has decreased its maintenance expenditures from 7.0 to 6.4 per cent of gross revenues, in the meantime increasing depreciation, or retirement, allowances from 8.1 to 11.2 per cent. The following figures summarize a study of the policy of twenty leading holding companies in this field for the years 1929 and 1939:

RELATION OF DEPRECIATION AND MAINTENANCE
TO GROSS REVENUES*

(By Per Cents)

	DEPRECIATION		MAINTENANCE	
	1929	1939	1929	1939
Highest.....	12.8	15.3	9.8	8.5
Lowest.....	4.9	8.1	3.4	5.1
Average Percentage.....	8.1	11.2	7.0	6.4
Average Variation from the Average of All Cases....	1.8	1.7	.8	.8

* Compiled by authors.

With the average for combined depreciation and maintenance currently varying between 15 and 19 per cent, the result is about equivalent to between 3 and 4 per cent on the book value of the company's property account. Where hydroelectric property with its low plant turnover exists, the percentage on property will be substantially lower.

Number of times charges earned. In studying next the number of times interest charges are earned, we must reconsider for a moment the nature of the holding company. Let us refer briefly to the complete consolidated income account shown on page 416. It will be observed here that the holding company shows \$70,900 available for bond interest amounting to \$18,000. It would appear from these figures that holding company charges had been earned nearly 4 times. While this figure is nominally correct, it is misleading. On the basis of the combined statement, \$109,900 is available for charges, after deduction of the holding company's expenses and the minority interest from the net operating income of \$120,000. This amount is available to meet the three successive series of charges, amounting to \$57,000, of which the holding company's bond interest is third in rank and is junior to the interest and preferred dividends of the

operating companies.¹⁹ On this over-all basis, it appears that the holding company interest has been earned 1.9 times. A similar method would be applicable to the holding company preferred dividend coverage. According to the income account, preferred dividends appear to have been earned nearly 3 times. In reality, these dividends constitute the last, in order, of the \$75,000 of total claims against the \$109,900 "net." Total combined charges, including preferred dividends, are thus earned but 1.47 times. Attention is called to this fact, because the typical selling circular advertising the bonds or preferred stocks of a holding company has almost invariably stated the number of times interest or preferred dividends were earned in the manner most favorable to the issue. Such circulars often neglected to show that the holding company itself was superimposed on a group of operating companies that were already very heavily capitalized, with the result that the bonds, and especially the preferred stocks of the holding company, were backed by a very thin equity.

For the reasons just stated, when discussing so-called normal figures, we shall refer to the number of times combined charges, or combined charges and preferred dividend requirements, are earned. One is probably safe in stating that, where combined charges are twice earned, including interest charges on the bonds of the holding company, the presumption is in favor of the soundness of such holding company issue. Likewise, where combined prior charges and preferred dividend requirements are earned 1.5 times, the preferred stock of the holding company will be favorably regarded. Special circumstances may be present in a given case to warrant somewhat different ratios, however, so that we must again caution the reader against too much faith in categorical statements. All analysis requires the tempering effect of judgment.

Assets and funded debt. In the analysis of a consolidated balance sheet, the assets supporting the holding company bonds are regarded as subject to the prior claims of the operating companies.²⁰ In the simple example on page 415, there were net

¹⁹ Coverage for the operating companies' charges would, of course, be on the basis of the \$120,000 of net operating income. The minority interest is deducted rather than combined with the holding company's charges because it represents income not available for the holding company.

²⁰ In the exceptional case where a holding company owns operating assets or a subsidiary with no senior obligations, the bonds of the holding company will be a first claim on such property.

assets after the deduction of current liabilities of \$2,130,000. Against these assets were \$600,000 of claims prior to the \$300,000 of holding company bonds, and an equity of \$1,010,000 (excluding the minority interest of \$120,000) succeeding. To compare the holding company debt only with the holding company stock equity would be to ignore the prior claims of subsidiaries to earnings. The ratio of net assets to the combined holding company bonds and subsidiary bonds and preferred stocks is 2.37 ($\$2,130,000 \div 900,000$), or 2.23, if the minority interest is eliminated as in the computation of the earnings coverage of charges. A convenient percentage statement of the consolidated capital structure would show the following:

	<i>Amount</i>	<i>Per Cent</i>
Subsidiary Bonds.....	\$300,000	14
Subsidiary Preferred Stock.....	300,000	14
Minority Interest.....	120,000	6
Holding Company Bonds.....	300,000	14
Holding Company Preferred Stock...	300,000	14
Common Stock.....	400,000	38
Surplus.....	410,000	
	<hr/> \$2,130,000	<hr/> 100

With over one half of the consolidated capital structure in the stock issues junior to the holding company bonds, the situation appears favorable. Even the holding company preferred is protected by a junior common equity of almost 40 per cent. Because of great variations in financial methods among utility holding companies, the capital structure proportions receive less emphasis than do those of the operating company. Primary emphasis is laid upon the income account, which is supplemented, where possible, by a study of at least major operating units in the system. Sometimes the presence of one or two unprofitable units may conceal the profitable character of other units—an important consideration, since a failing subsidiary can be abandoned to its fate if this appears desirable.

Earnings per share of common. Although it is true that asset values are important in determining the value of the securities of public utilities, earning power is still of primary importance. The value of the common stock of a utility holding company will be governed largely by earnings per share. The market value and earnings of utility holding companies fluctuate over a rather wide range, it is true, and the relation of earnings to market prices tends to vary from time to time, depending on

market conditions. In spite of the higher risk, the tendency during the 1920's and early 1930's was to value holding company common stocks on much the same ratio to earnings as those for operating companies. Frequently they sold on a basis that showed an earnings return of but 6 to 8 per cent. The risks of trading on equity were deemed to be less important than the prospects for profitable growth. In more recent years the dangers of compulsory reorganization under the terms of the Public Utility Holding Company Act of 1935 and the belief that expanding profits and the era of capitalizing upon the services rendered operating companies by holding companies were at an end have led to a more conservative appraisal of holding company earnings.

Much the same factors that cause different rates of capitalization for operating company earnings are present in the holding company field. Less than average depreciation or the presence of considerable traction property will be deemed unfavorable and cause a common stock to sell for a lower multiple of earnings. Special risk factors in the case of holding companies lie in the danger of dismemberment because of widely scattered, nonintegrated properties, or in the need for corporate simplification because of a pyramid of holding companies. In some cases the common stock has come to have only very doubtful speculative value because of an accumulation of unpaid preferred stock dividends. In other cases earnings are required by operating subsidiaries because of expansion needs, which are difficult to finance otherwise, owing to the lack of a favorable public market for either the common stock of the subsidiary or the securities of the holding company. The analyst of holding company securities must not only study the consolidated figures but must also examine the possibilities of collecting cash income from the several subsidiaries and the effect of possible liquidation under the compulsion of the Securities and Exchange Commission. The commission has recently published suggested plans for the integration of some of the major holding companies.²¹

In studying the variations of net earnings for the holding company common stock, the influence of the system's capital structure should be recognized. The heavier the bonded debt of a

²¹ See footnote 25. For a discussion of some effects of liquidation see two articles by William W. Amos: "Changed Position of Holding Company Debentures," *Barron's*, Feb. 3, 1941, and "Values in [Holding Company] Utility Preferred Stocks," *ibid.*, March 24, 1941.

corporation, the larger, of course, its fixed charges. Where a corporation is thus financed largely by funded debt or funded debt and preferred stock, leaving only a small residue of capitalization represented by common stock, a slight drop in gross, or a small increase in operating expenses, tends greatly to reduce per share earnings. Conversely, a slight increase in operating revenues or a slight decrease in operating expenses tends greatly to increase per share earnings on the common stock.²² For this reason the common stocks of companies with a proportionately heavy funded debt offer opportunities for larger profits; on the other hand, they must be considered more speculative.

Use of gross revenues in appraising holding company securities. The relation of gross revenues to capitalization affords other interesting comparisons. It is generally felt that a public utility holding company system may be conservatively capitalized at 5 times gross revenues. This, again, is a statement that can be used only in a general way, subject to modifications in special cases. Such a ratio will be too low when any substantial part of the property consists of hydroelectric plant, as is common in many of the important systems.²³

At best this method of studying capitalization is useful as a check upon balance sheet valuations, rather than as a means of determining investment value of the holding company securities. By looking for over- or under-valuation of property, one is checking the figures which determine the book value of the holding company's common stock equity. Aside from reasonable and expected variations in the ratio of property to gross revenues because of the type of utility property (steam or hydroelectric, gas, traction, or water), there are also cases of abnormal revenues because of inequitable rates or a business depression. Any such method of valuation is giving primary emphasis to asset values, whereas net earning power is of chief importance.²⁴ The earning power of the holding company common stock equity will depend not upon gross revenues, except indirectly, but upon the rate earned upon the combined properties and the cost of the senior

²² See pp. 279 to 282 for a description of the pros and cons of trading on equity.

²³ For a statement of property to gross revenues ratios in 1929 and 1930 of leading holding company systems, see Guthmann, H. G., "Financial Ratios of Utility Holding Companies," *Chicago Journal of Commerce*, Jan. 6, 1932.

²⁴ In order to contrast capital structure comparisons based upon percentages drawn from the balance sheet and upon times earned coverage, see *supra*, Dec. 30 and 31, 1931. Reprinted in Guthmann, H. G., *Analysis of Financial Statements* (New York: Prentice-Hall, Inc., 1935), pp. 543, 547.

capital obtained from the sale of bonds and preferred stocks. Consequently, interest centers on: (1) the amount of net earnings available for the common stock equity; (2) the degree of risk, which is approximately measured by the number of times the combined interest and preferred dividend charges have been earned; and (3) the accuracy of the reported earnings, which last point explains the intense scrutiny applied to maintenance and depreciation policy.

Federal regulation. The Public Utility Act of 1935 was designed to give the Securities and Exchange Commission the power to regulate electric and gas utility holding companies, and the Federal Power Commission control over the interstate electric power business. The so-called "death-sentence" provision (Section 11) requires the elimination of holding companies beyond the second degree; that is, three "layers" of companies may be permitted: (1) operating companies controlled by (2) intermediate holding companies, the latter controlled in turn by (3) a top holding company. Even holding companies of the second degree will continue only at the sufferance of the commission and will each be limited to an integrated utility system which is not too large to impair local management, efficient service, and effective regulation. (A holding company is defined as one with 10 per cent of the voting control.)

Those holding company systems which are intrastate in character, such as Niagara Hudson Power Corporation, would presumably be unaffected by this legislation. A system whose properties and operations lie outside the United States, like American and Foreign Power Company, can also claim exemption. Those systems which are (1) made up of a relatively few well-integrated subsystems, (2) in good financial condition, and (3) possessed of relatively simple capital structures, would presumably suffer the least in any process of simplification and dismemberment. On the other hand, systems with the opposite qualities might so suffer in the process as to leave slight values for many security holders in the topmost holding companies. A holding company system under this act is required to limit itself to a single group of contiguous, integrated properties unless the commission deems an exception to be in the public interest. Because geographical diversification is advantageous for the investor and has permitted holding companies to draw strength from its more fortunately located units to assist weaker units, it was hoped that the commission would administer this provision

liberally, as the act permits whenever it appears in the public interest. The earlier pronouncements of the commission indicate that it intends to follow the strictest interpretation of the law in its refusal to allow more than one integrated system, which, in turn, must be comparatively small in order not "to impair the advantages of localized management, efficient operation and effectiveness of regulation."

Conformity with the act will undoubtedly require the sale of some or even a considerable portion of certain holdings to the public or to other utility systems, or an exchange of properties with other utilities. Holding companies coming under the ban may be eliminated by liquidation or by a process of simplification in which one holding company in the chain absorbed others by an exchange of stocks and the assumption of debt. Such steps would be easiest in a period of favorable business conditions and buoyant security markets.

Holding companies that survive are brought under the regulatory power of the Securities and Exchange Commission, much as operating companies have been under state commission control in the past. Accounts and reports, the acquisition and sale of assets, financing, and intercompany relations are regulated by the commission. Services rendered by holding companies to subsidiaries are to be on a cost basis and without profit. Such regulation can be seen to be of financial importance since it will include: (1) passing upon charges made by the holding company to the operating company, including the rate of interest on loans; (2) restricting dividends of operating companies to holding companies; and (3) refusing to approve even operating company financing unless stock equities are deemed adequate in relation to proposed debt and unless depreciation allowances are sufficient.

Actual operations involving the transmission and sale of electricity over state boundaries are brought under the control of the Federal Power Commission. Its powers are much like those of state commissions and involve regulation of rates and power to compel the interconnection and coordination of electric facilities and to ban "write-ups" in asset accounts.

The investor is faced with two major uncertainties with respect to this Federal legislation, at the present writing (1941). First, there is doubt as to whether all sections of the law, particularly Section 11, will be upheld as constitutional. Second, in the

event that the law is upheld, there is some question as to the manner in which the Securities and Exchange Commission will interpret and apply its broad powers over the holding company. The law is extremely general, even ambiguous, so that the application of such phrases as "not detrimental to the public interest, or the interest of the investors, or consumers" will depend very largely upon the personnel of the commission.²⁵

Management. In addition to acquainting himself with methods which are largely statistical in scope, it is necessary for the investor to make himself familiar with the management of the company—its ability, honesty, and past success. The mere fact that a group of properties is under the management of Stone & Webster, Electric Bond & Share, or, up until the time of the crash, the Insull interests, has frequently been regarded by some investors as a sufficient guaranty of their success. With the development of more nearly adequate financial statements and other information, more attention should be given to the record of the company, which should be the support of reputation.²⁶ The territory served by the company and the opportunities for profitable extension and development are likewise important. It is further necessary to ascertain the amount of gross revenues derived from electric light and power service, gas, and traction. In view of the present unfavorable condition in the traction and ice fields, the company should not derive more than 15, or pos-

²⁵ For a further description of the act see articles by Herbert Lawrence in *Barron's*, Sept. 16 and 30, 1935. For the text of the act, see *Commercial and Financial Chronicle*, August 31, 1935, pp. 1331-1344.

The initial integration plans of the Securities and Exchange Commission affecting United Gas Improvement, Engineers Public Service, and Commonwealth and Southern will be studied with interest as indicating the drastic extent to which systems may be broken up under the "death sentence" clause. In one plan the Commission goes so far as to state that even investments (as distinguished from subsidiaries), either utility or non-utility, may not be retained unless reasonably incidental, or economically necessary or appropriate, to the operations of the single integrated public utility system. The order that two classes of junior stock of the International Hydro-Electric System be cancelled without compensation is also significant.

²⁶ Although the proximate cause of the Insull crash lay in inconveniently maturing short-term debt, it is significant that the Middle West Utilities Co did not publish fully consolidated statements and was less conservative than the average holding company system in such matters as depreciation. In marked contrast were the figures for North American Co. For 1929 and 1930 figures, see Guthmann, H. G., "Financial Ratios of Utility Holding Companies," *Chicago Journal of Commerce*, Jan. 7, 1932. Insull Utility Investment Co. did not disclose its portfolio until after its own securities had been sold to the public.

sibly 20, per cent of its entire gross revenues from such sources; otherwise it loses some of its character as an electric light and power company.

Summary. It is evident that the methods of analysis applicable to electric light and power operating companies differ from those employed in the study of holding companies. The former are distinct units; the latter, often heterogeneous groups of companies, to which the use of common measures of operation other than those derived largely from financial statements are inapplicable. The rapid expansion of the electric light and power industry since the beginning of the present century has been accompanied by a remarkable extension of the holding company idea, with resulting economies on the whole, but with financial manipulation on the part of some. Electric light and power companies, no less than other industries, require the study of all the pertinent data before commitments are made, despite their regulated character.

Investment Analysis of Special Classes of Utilities (Concluded)

The Gas Industry

Historical development. Next to the service of water supply, the service of gas supply is the oldest of the public utilities here under consideration. The manufacture of gas for purposes of illumination dates from the latter part of the eighteenth century, when experimentation was carried on simultaneously in England and France. Apparently this was only laboratory experimentation until 1805, or thereabouts, at which time, there is reason to believe, gas was used, for lighting in Manchester, England.

The first recorded experimentation in the United States was in 1806 in Newport, Rhode Island, when coal gas was manufactured for private use on the premises of Daniel Melville. The first crude processes were improved from time to time, and in 1813 Melville secured a patent and introduced gas for illumination in a cotton mill in Watertown, Massachusetts.

The prospects for commercial development of gas manufacture led to decided improvements in technological processes, and the first gas company, the London and Westminster Gas Light and Coke Co., was chartered in London in 1812.¹ The first gas company in the United States, the Gas Light Company of Baltimore, was chartered in 1816 and was authorized to "manufacture, procure or collect 'gas or inflammable air,' and to preserve, use.

¹ See Ginsberg, L., "The Story of Gas," *American Gas Journal*, Oct. 11, 1924. p. 928.

and distribute it as a means of giving light or any other useful purpose, or for lighting the streets and public places and houses and other buildings. . . ."²

The Boston Gas Light Company was organized in 1822 and was soon followed by the organization of companies in New York City in 1823; in Brooklyn and Bristol, R. I., in 1825; in New Orleans in 1835;³ in Pittsburgh and Philadelphia in 1836; in Louisville in 1838; in Cincinnati in 1841; and in Albany in 1845.⁴

These early companies gradually overcame a variety of obstacles. Large capital investments were required for the construction of the manufacturing plants and the distribution systems. Early opposition, because of fear that the manufacture and use of gas endangered the public safety, soon gave way to sympathetic support of the projects. Notwithstanding the relatively high cost of gas for illumination, the industry continued to develop. In 1849 thirty establishments were engaged in the manufacture of illuminating gas for sale, with a capital investment approximating \$7,000,000, producing a commodity approximating \$2,000,000 in value, with an employed personnel of approximately 900 persons, earning in excess of \$390,000. In 1869 the industry had grown to include 390 establishments, employing a capital investment of \$72,000,000, manufacturing a product valued in excess of \$32,000,000, and employing a personnel of approximately 8,700 persons, earning \$6,500,000.⁵ Although today these figures appear to be small, they represent a rapid rate of growth.

Competition with oil and electricity. Until 1870 gas for illumination competed with candles and whale oil only, and its superiority was unquestioned. The introduction of kerosene oil, however, offered more serious competition. It possessed higher illuminating value than either of its forerunners, and it could be utilized with considerably more economy than gas. Doubtless this retarded somewhat the development of the gas industry, but the situation was changed very soon by the results of certain experimentations in production processes. Until this time coal gas only had been produced, but the investigations of

² Wilcox, Delos F., *Municipal Franchises* (New York: Engineering News Book Dept., 1910), Vol. I, p. 623.

³ "Manufactures," *Twelfth Census of the United States*, Part IV, Vol. X, p. 713.

⁴ Barker, Harry, *Public Utility Rates* (New York: McGraw-Hill Book Co., 1917), p. 278.

⁵ "Manufactures," *Eleventh Census of the United States*, Part III, p. 699.

Du Motay and Lowe⁶ led to the introduction of so-called water gas. The manufacture of water gas at lower production costs had hardly overcome the opposition of coal-gas producers, however, when the appearance of electricity as an illuminant brought the first important challenge to gas.

The perfection of the electric arc in 1878 was followed in 1881 by the appearance of the incandescent electric lamp. The economical use of gas for heating purposes had not as yet been demonstrated, but the superiority of the electric lamp from the standpoint of safety and illuminating value soon encouraged the search for new uses. The cost of gas was gradually reduced, and its use was extended to domestic and industrial heating. Notwithstanding the growth and development of central station electric lighting, the gas industry continued to expand. More and larger uses for gas were found. The appearance of electricity served not so much to retard its development as to force it into a new field of public service, where its natural superiority was to be demonstrated. In 1889, 714 of the then 1,244 cities in the United States, each with a population in excess of 2,500, were supplied with gas.

In 1899 the gas industry had grown to include 877 establishments with a capital investment of \$567,000,000, a product valued at \$76,000,000, and an employed personnel of 28,000 persons, earning approximately \$18,000,000.⁷ Of the 1,653 cities in the United States, each with a population in excess of 2,500, 827 were supplied with gas. Of these cities, 798 were served by one plant each; 22 cities by 2 plants each; 4 cities by 3 plants each; and Chicago claimed 4, Boston 6, and New York 13.

In 1939 the manufactured gas industry had gross revenues of \$365,150,000 from the sale of 362,409,100 thousand cubic feet of gas to 10,044,980 customers in areas with a total population of 48,258,800. The population to customers ratio was 4.8. The larger importance of the natural gas industry in recent years is indicated by its gross revenues of \$448,859,300 from the sale of 1,328,242,600 thousand cubic feet of gas to 7,453,930 customers in areas with 34,298,000 population.⁸ The lower cost of natural gas has permitted great expansion in gas consumption, particu-

⁶ "Manufactures," *Twelfth Census of the United States*, Part IV, Vol. X, p. 714.

⁷ *Ibid.*

⁸ *Annual Statistics of the Manufactured Gas Industry in 1939*, p. 21; *Annual Statistics of the Natural Gas Industry in 1939*, p. 14. (New York: American Gas Association, 1940).

larly for industrial purposes, where low energy costs are much more important than they are for the domestic user.

Technical aspects of gas production. The service of gas supply requires the maintenance and operation of a central manufacturing plant, a central storage facility, and an extensive distribution system. The manufacturing plant consists of an elaborately constructed "works," where the physical and chemical processes of gas generation are carried on more or less continuously. The storage facility consists of a sizable gas holder, to which gas is conveyed as manufactured and upon which the distribution system draws for the satisfaction of consumer requirements. The distribution system includes low-pressure mains, in some cases high-pressure transmission mains for distant conveyance, reducing stations, and service lines. The nature of the production process, the nature of the demand for service, the size and layout of the city, all enter into the determination of the division of the capital investment between the "works" and the storage and distribution facilities. The investment in the storage and distribution facilities is usually double the investment in manufacturing plant and equipment.

The gas industry today is organized technologically for the production of several kinds of gas, the most important of which are carbureted water gas, straight coal gas, mixed coal and water gas, and oil gas. The manufacture of coal gas consists of the destructive distillation of bituminous coal. Coal is heated for several hours in fire-clay retorts, which are in turn heated from without by coal, gas, or oil furnaces. Gas, consisting chiefly of hydrogen, methane, and, to some extent, carbon monoxide, is drawn off, and a carbon residue, coke, is left. This gas is passed through several purifying, condensing, and by-product extracting processes, after which it is measured and conveyed to the gas holder. The chief by-products are coke, tar and tar oils, and ammonia. High-temperature carbonization yields larger quantities of gas, and the gas has larger hydrogen content and more by-product ammonia. Low-temperature carbonization yields gas with higher calorific value and more by-product coke and tar. On the average, under low-temperature carbonization, gas contains 45 per cent of hydrogen. The problem of coal gas engineering consists in procuring the highest possible advantage from high-temperature carbonization in quantity and quality of gas and in by-product extraction. A ton of coal under low-temperature carbonization can be expected to yield 400 cubic feet of gas.

Under high-temperature carbonization it can be expected to yield from 8,000 to 12,000 cubic feet of gas, about 1,300 pounds of coke, 12 gallons of tar, and 30 gallons of diluted ammonia.

Coal gas manufacture is frequently supplemented within the establishment by water gas manufacture. Carbureted water gas is often used to enrich coal gas from the standpoint of calorific value or candle power. Water gas installations are frequently used to meet the requirements of peak loads and emergency demands upon the production system. The water gas generating facilities can be set in operation within a relatively shorter time than can coal gas generating facilities.

The manufacture of water gas involves the passing of steam over a bed of incandescent carbon in the form of coke, the chemical reaction resulting in the generation and combination of carbon monoxide and hydrogen. This is known as "blue water gas." Blue gas possesses lower calorific and luminous value than is generally required for consumption purposes. This deficiency is overcome by enriching or carbureting the blue gas through the generation of oil gas in combination. Oil is sprayed into a hot carbureter, where it is converted into oil gas composed of hydrogen, methane, and other hydrocarbons. The carbureted water gas then passes through purifying and condensing processes into a relief holder. In some instances it is mixed with unpurified coal gas before purification. Water gas generation is usually an intermittent process, because of the necessity for reheating the bed of coke after the "run," lasting about four minutes, followed by the "blow," a blast of air lasting about one minute. The gas is collected during the "run" in the relief holder, and the delivery to the storage holder is thereby equalized.

Where the relative cost of coal and oil permits, gas is often manufactured from oil. Oil and steam are blown into the generating apparatus and an air blast is also admitted. After a heating period of a few moments, gas is drawn off and passes on through purifiers to the holders. Oil gas resembles coal gas more than water gas. Its advantage lies in its luminous quality rather than in its calorific value. The cost of oil, however, continues to present an economic obstacle to the development of oil gas generation.⁹

The rapid growth in the recent past of long distance pipe lines for the transmission of natural gas from oil fields to the

⁹The preceding historical and technological sketch of the gas industry was furnished by Professor James P. Adams, of Brown University.

large metropolitan centers has added new problems for the investor. The companies which produce such gas are usually oil companies, but the transportation, which is a major cost factor, is generally undertaken by independent corporations, in which a gas utility may have an investment interest. To the extent that natural gas instead of manufactured gas is sold to the consumer, investment in production facilities may be reduced and the customary plant turnover and operating ratio increased. Since natural gas has greater heating value than manufactured gas, there has been a tendency toward the measurement of gas, not by cubic feet, as before, but by a unit of heating value, the therm.

Gas industry compared with electric power and light. In many ways the gas industry is less flexible than the electric power and light industry. A gas company, once established and equipped with a plant and mains, represents a relatively fixed investment, a point which is largely explainable by reference to the type of distribution system required. Mains must be underground, whereas electric wires may be overhead, and thus the latter are more easily moved or extended for considerable distances. A gas company, therefore, after certain limits of expansion have been reached, can extend its area of service only with difficulty, and it can make adjustments to the needs of its customers only within narrow limits. Furthermore, it is uneconomical for a gas company to operate in cities below a certain size. In small communities overhead cost of establishing the plant and laying the mains is often not justified by the amount of business the company can do. On the other hand, those companies serving thickly populated areas enjoy the advantages of large-scale production, effective utilization of distribution facilities and, consequently, they enjoy both low production and low distributing costs.

Because of this inflexibility it is especially necessary for the prospective investor to study the size and future prospects of the company in which he anticipates investing. Companies located in areas whose population is declining, or in small and slowly developing communities, are not, as a rule, attractive. The cost of distribution is often high for such companies and their opportunities of developing or of increasing profits are limited. Furthermore, it is often impossible for such companies properly to diversify the types of customers to which they sell,

with the result that the prosperity of the company is too often tied up with the fortunes of a few local industries, which may mean undue fluctuations in revenue from year to year.

The operation of a gas plant does not involve quite the same problems in connection with the character of the demand for service as were found to exist in the electric light and power industry. The problem of adjusting the capacity of a gas works to maximum demand is related essentially to its distribution facilities, and not to its plant. The capacity of a gas plant is adjusted to meet the maximum daily demand on the basis of continuous operation, and not the maximum instantaneous load, as with an electric light and power plant. When the production of a gas plant exceeds send-out, the excess is stored in the storage holder. When send-out exceeds production, the distribution system draws upon the holder. The *distribution* facilities, however, must be adjusted to meet the maximum instantaneous demand (usually measured as a maximum hourly demand). It is nevertheless true that gas companies can operate to better advantage where there is a high diversity factor among customers and where the maximum hourly demand approaches the average hourly demand over a 24-hour period. In small communities there is less opportunity for ideal demand conditions than in large cities.

Effect of competition with electricity. As previously suggested, the gas industry went through a rather severe test period in this country during the first two decades of the present century. At the opening of the present century, gas was used largely for illuminating purposes. The superiority of electricity, however, in respect to comfort, safety, and convenience, as well as to economy, caused a rapid transformation. As a result, the gas industry lost a considerable market for its product, and this fact at the time made it appear that the industry might experience a permanent decline.

The development of new home uses for gas and the rapid increase in industrial consumption, however, have more than offset the market lost in the field of illumination. During the first three decades of the present century, there was a very rapid and consistent growth in the volume of gas sold in this country, whether measured in terms of dollars or in millions of cubic feet of output, in spite of the competition of electricity. The total increase in annual production from 1899 to 1929 was, in fact,

more than 550 per cent.¹⁰ More recently the volume of manufactured gas business has been stabilized, largely as a result of the rapid expansion of the natural gas division of the industry. An increasing proportion of output has been sold to industrial users. In the natural gas field, industrial consumption is the larger division of the business in terms of volume sold, although the domestic consumers contribute the major part of revenue.¹¹ An increase in the proportion of industrial consumption tends to make gross revenues more variable from year to year; home consumption fluctuates less in response to changes in business conditions.

Analysis of gas companies: extent of utilization. In the gas industry the "mile of main" is often used as a basis for studying the economic position of the industry in the community. Population per mile of main and customers per mile of main, on the other hand, provide a measure of the effectiveness with which the company serves its territory. If the population per mile of main is high, while customers per mile of main in a given case are relatively low, there is presumptive evidence that the selling efforts of the company have not been properly exerted, that prices are too high, or that the character of population is not conducive to satisfactory development. On the other hand, high figures for both population and customers per mile of main suggest

¹⁰Based on data from *United States Bureau of Census Reports*.

GROWTH OF MANUFACTURED GAS INDUSTRY

<i>Year</i>	<i>Number of Establishments</i>	<i>Value of Product (000,000 omitted)</i>	<i>Quantity of Gas Produced M. Cu. Ft. (000,000 omitted)</i>
1899	877	\$ 76	67
1904	1019	125	113
1909	1296	167	151
1914	1284	220	204
1919	1022	329	344
1925	919*	455	396
1929	754*	513	438
1935	520*	345	342

* Until 1921 enterprises doing an annual business under \$500 were omitted. In 1921 the limit was raised to \$5,000. In 1919 there were 74 reporting companies with an annual product between \$500 and \$5,000.

The rapid increase in the use of natural gas and the shift of some manufacturing companies to that category since 1925 has altered the significance of the census data in the later years. See annual statistics of the American Gas Association.

¹¹See *Annual Statistics of the Manufactured Gas Industry* and *Annual Statistics of the Natural Gas Industry* (New York: American Gas Association, annual).

better development, but may indicate that the limit of rapid expansion has been reached. Low population per mile of main usually means a sparse or poorly distributed population, a situation that often makes necessary a relatively high investment in distribution facilities. The average plant will show between 500 and 800 consumers per mile of main, although in very thickly populated areas the figures will run substantially higher.¹²

The number of meters per mile of main is the figure frequently used to measure the density of business. This ratio has particular significance in the gas industry because of the relatively high investment required here in distribution facilities. Meters per mile of main commonly run between 100 and 150, although in larger cities the figures often run much higher. Thus New York has over 300 meters per mile of main. Ratios of this nature, however, should not be relied upon as conclusive evidence of the relative merits of a given company, for at best they merely indicate possible situations that should be verified by further study.

Sales per unit of main. Other interesting comparisons center on sales per unit of main, in terms of cubic feet and in terms of dollars. Such measurements serve to indicate the effectiveness with which one company utilizes its investment as compared with other companies operating under substantially similar conditions. The ratio of cubic feet per mile of main is probably the more accurate of the two methods of comparison, for the question of different rates as between different companies is thus eliminated. Annual gas sales per mile of main, in terms of cubic feet, are subject to considerable variation as between communities on account of differences in customer density, but will normally range between 2,500,000 and 4,500,000 cubic feet. In very large cities, sales may run as high as 8,000,000 or 9,000,000 cubic feet per mile. In terms of revenues per mile of main, one finds a normal range between \$3,000 and \$7,500.

Financial analysis: capitalization, gross revenues, and operating ratios. The total capitalization of gas companies may be compared with gross revenues in much the same way as for electric light and power companies. In view of the fact that the characteristic operating ratio of gas companies is somewhat higher than that of electric light and power companies, however, one would expect a somewhat lower capitalization in relation to gross

¹² A check upon this population density factor is found in the miles of main per 1,000 of population served. The normal range will be found between 1.25 and 2 miles.

sales. Actually, invested capital (bonds plus net worth) for manufactured gas companies amounted to \$5.23 for each dollar of gross revenues in recent years.¹³ When a company purchases a substantial portion of its gas from another company, as from a natural gas company, its operating ratio is likely to be higher, and its revenues to invested capital ratio should be higher, than for the ordinary manufactured gas company. The table shown here covers the situation for selected New England companies in typical years during the prosperous 1920's and during the late 1930's.¹⁴

TOTAL CAPITALIZATION PER DOLLAR OF GROSS REVENUES

	1925	1927	1929	1937	1938	1939
Bridgeport....	\$3.45	\$3.25	\$3.16	\$3.95	\$4.17	\$3.81
New Haven.....	2.20	2.23	2.65	3.22	3.18	3.16
Hartford.....	2.60	2.73	3.01	3.37	3.31	3.24
Providence.....	4.26	4.31	4.44	5.38	5.38	5.21
Springfield....	3.56	3.76	4.03	5.59	5.65	5.56

OPERATING RATIOS

	1925	1927	1929	1937	1938	1939
Bridgeport.....	74%	73%	71%	71%	72%	72%
New Haven.....	81	80	72	83	82	82
Hartford.....	72	72	73	82	83	82
Providence.....	67	63	56	70	74	70
Springfield....	77	77	73	86	87	85

The figures for these companies in cities of moderate size would suggest that where formerly the capitalization to revenues ratio ran from $2\frac{1}{2}$ to $4\frac{1}{2}$, it has risen to a range of from over 3 to $5\frac{1}{2}$. Moreover, operating ratios that formerly ran about 70 per cent have tended to rise to about 80 per cent. The combination of tendencies is unfavorable and explains the relative lack of popularity of gas securities as compared with electric utility issues.

A relatively low plant investment may compensate for a high operating ratio. The tendency to purchase increasing amounts of natural gas from outside producers has made possible increasing gross revenues without corresponding increases in investment. Whenever any substantial part of the capital funds are in investments rather than in operating plant, it will be found more ap-

¹³ *Moody's Manual of Investments: Public Utilities* (New York: Moody's Investors Service, 1939), pp. a54-a55. Complete data on the gas business are difficult to obtain, for often the operations are conducted by the local electric company. Some idea of the extent of common ownership may be had from *Moody's Public Utility Directory*, *ibid.*, pp. a95-a104. However, even where two different companies are shown in this directory, one may be a subsidiary of its fellow operating utility.

¹⁴ Compiled by the authors.

propriate to compare plant, rather than the capital structure, with the gross revenues. It is impossible, of course, to make generalizations applying to the whole industry. These suggestions, therefore, should serve largely to direct attention to the basis of comparison rather than to serve as a standard for any particular company. What the ratio should be in a specific case will be determined after a study of other pertinent data.

Analysis of capital structure. In regard to what constitutes a proper capital structure, and what constitutes proper safety factors for the bonds of gas companies, it may be said that essentially the same tests are applicable as were suggested for electric light and power companies. Interest charges should be earned at least twice over a period of years. Bonds should not exceed more than 50 to 60 per cent of capital structure, and where a supply of natural gas is used a policy of funded debt retirement within the probable life of the gas wells may be necessary.

Summary. In summary it may be said that the gas industry has survived the severe crisis presented by the rapid development of the electrical industry and now appears to be in a satisfactory condition. Consequently, the securities of properly managed gas companies may be considered as conservative investments. At present, the number of gas meters in receivership is extremely small. Except one or two small subsidiary companies, no manufactured gas properties are now in the hands of receivers. The greatly increased availability of natural gas at low prices in recent years has done much to enhance the position of this branch of the industry. Since more than half of the sales of natural gas have been for industrial purposes, the fluctuations in demand are sharp. The mushroom growth of many natural gas producers not engaged in retailing, and the low levels to which business activity has dropped, have resulted in a great deal of financial disturbance among such companies. Natural gas companies which sell wholesale to utilities instead of retail to the ultimate consumer should be regarded as industrials with a depletion type of asset rather than as utilities. Very often the gas business is carried on by the same corporation that conducts the local electric light and power operations. While this combination may hinder the type of analysis outlined, it should tend to reduce the somewhat greater investment risk usually attributed to an independent gas company.

Although perhaps not so widely recognized as the electric light and power industry, the industry engaged in the manufacture

and sale of gas nevertheless plays a vitally significant role in our industrial and commercial life and will no doubt continue to play an increasingly important part for some time to come.

Electric Railways—Street and Interurban

Unfortunate position of electric railways. The electric railway industry is in perhaps the most unfortunate position of all the so-called public utilities. In outward appearances, at least, the industry started under auspicious circumstances and showed a fairly healthy growth until economic conditions began to change during the World War I. In 1890 we find 789 companies operating 8,123 miles of track. By 1902 the number of companies had increased to 987, and trackage had increased by more than 150 per cent, amounting to 22,577 miles. By 1912 the miles of line operated had increased to 40,065, and in 1917, to 44,835.¹³ Since that time there has been an actual decrease in miles of track operated, and the bus has increasingly taken its place. The present situation is best seen in the following table:

MILES OF TRACTION SERVICE OPERATED
DECEMBER 31, 1939*

Surface Railway.....	19,488
Bus Routes.....	34,846
Trolley Bus Routes..	1,664
Rapid Transit...	1,368
Total....	57,396

* *Transit Journal*, vol. 84, p. 8 (January, 1940).

Recent receiverships. The entire story of the failure of electric railway companies to live up to the performances of other public utilities is not told, however, in terms of miles operated. An even more unattractive picture is found in the record of receiverships of electric railway companies. Evidence of this nature is given in the table on page 441.

Cause of present situation. While it is true that the electric railways of this country have suffered severely from the competition of other forms of transportation, notably the bus and the private automobile, as well as from rising costs of operation, it is also true that the early development of many electric railway companies was not entirely sound. These companies were

¹³ *Statistical Abstract of the United States*, 1930, p. 422. Much of the mileage operated in 1890 was adapted to horse cars.

ELECTRIC RAILWAYS PLACED UNDER RECEIVERSHIP: 1910-1939*

(Five-Year Annual Averages)

Years	Number of Companies	Number of Miles of Track	OUTSTANDING SECURITIES	
			Stocks (Thousands of Dollars)	Bonds (Thousands of Dollars)
1910-1914.....	17	459	25,829	38,384
1915-1919.....	29	1,753	77,994	112,318
1920-1924.....	15	842	24,579	36,143
1925-1929.....	11	775	23,512	47,611
1930-1934.....	13	1,441	68,085	132,366
1935-1939.....	5	432	18,159	31,083

* *Statistical Abstract of the United States*, 1934, p. 374, 1939, p. 427; *Transit Journal*, Annual Statistical Number, January, 1940, p. 20.

frequently overcapitalized. This is not strange, however, when one considers the novelty that electric traction held for the public from, say, 1890 to 1905, the optimism with which this form of transportation was first received, and the absence of regulation. Promoters, quite naturally, capitalized the concerns in which they were interested on the basis of the earning power that they expected would later develop; and, when mergers or consolidations of independent lines into systems took place, the operation of increasing capitalization was repeated. In this way the industry was in a vulnerable position when it was required to face the test of adverse conditions, induced partly by rising prices and operating costs during the war and partly by the wide increase in the use of private automobiles and buses.

Competition and the electric street-car. The major factor in the decline of the street railway is found in the rise of the private automobile. The rise of passenger automobile registrations in the United States is compared with the traffic for the traction industry in Figure 16. The statistics up until about 1924 represent the electric railway but thereafter a growing amount of motor bus and trolley bus traffic is included in the total. It will be noted that the peak in revenue passengers carried was reached in the year 1926.

In all but the larger communities the electric railway has disappeared, to be replaced by the motor bus where sufficient traffic would support the smaller investment of the latter. The motor bus is more economical when traffic density falls below a certain level. Where congestion occurs and traffic volume is heavy, the greater investment of the electric street railway is justified. In a few metropolitan centers the problem of passenger movement

is on such a scale as to make even the high investment of the subway or elevated railway economic. The electric interurban railway, so important at the beginning of the century, has virtually disappeared save where it serves as a long distance suburban service to a large city.

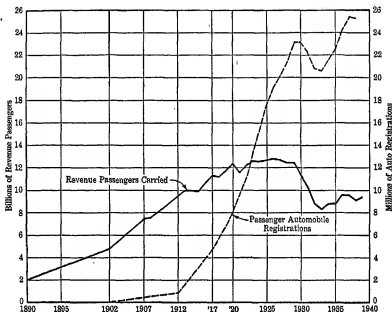


Figure 16—Trends of Traction Passenger Traffic and Passenger Automobile Registrations—United States.¹⁶

Rising costs of operation, rates, and profits. The financial difficulties of our electric railways after 1917 were probably due as much to the rapid increase in commodity prices and wages as to any other one cause. This increase in operating expenses proved particularly burdensome to the traction companies, since they were often prevented, by reasons partly political and partly economic, from raising the prices of their services correspondingly. The combined operating ratios of electric railways increased from 58.7 per cent in 1912 to 74.9 per cent in 1927.¹⁷ This situation is more strikingly shown in the matter of wages.

¹⁶ Passenger Traffic estimates based on Census data supplemented by estimates of American Transit Association, New York. Registrations: *Statistical Abstract of the United States*, 1939, p. 393.

¹⁷ *Statistical Abstract of the United States*, 1930, p. 422.

In 1913, for instance, wages absorbed nearly one third of the operating revenue of a typical traction company. They increased 111 per cent between 1913 and 1928, while during the same period cash fares increased but 66 per cent.¹⁸

Recent tendencies. In contrast with the situation in the electric light and power industry, which recovered rapidly after the postwar depression, operating results of electric railways continued to be unfavorable. The peak of operations was reached in the mid-1920's. A major decline in the early 1930's was succeeded by some recovery, to a new and lower level of operations.

Some companies discontinued operations. Others substituted bus equipment or were succeeded by a bus company. In major cities a mixed system of equipment prevails, often operated by a single company. The importance of inexpensive mass transportation in the large congested city has resulted in municipal ownership and operation in a number of cases where inadequate fares or other difficulties made private operation unable to provide the necessary service. The problems which confront the traction industry make it generally speculative and make extremely careful scrutiny of the individual situation important.

Analysis of territorial factors and population. A study of the securities of individual electric railways presents certain interesting problems. In the matter of population distribution, it is important that an analysis be made of the extent of population served, the normal community growth, and the distribution of population. Topographical features likewise have an important influence on costs. The presence of grades adds to operating costs, while communities situated along river banks or shore fronts can expand in only one direction. Where the latter situation exists, the traffic density on certain lines of the local railway system is often kept down, especially where the lines do not run through the center of the areas they serve, but on the outer edge. Growing suburban areas are often more advantageous to the traction company than are heavily populated centralized areas. In localized areas the average haul is often so short that an increase in fares tends to discourage riding, whereas, if the average haul is long, transportation is indispensable. On the other hand, thinly populated areas located at some distance from the civic center of the community are not desirable, for they make necessary long hauls with inadequate traffic.

¹⁸ *American Electric Railway Association, Bulletin No. 278, October 1, 1929, p. 42.*

Measurements of traffic density. Traffic density of an electric railway may be computed either by dividing the number of passengers carried annually by the number of car miles run, or by dividing the number of revenue passengers carried annually by the total investment of the company. The first ratio furnishes information concerning the extent to which actual cars operated have been utilized; the second indicates the number of passengers accommodated or handled per dollar of investment. Fares charged should be taken into consideration when the preceding ratios are compared for different lines. A road with a five-cent fare will, of course, have to carry twice as many passengers as a road charging a ten-cent fare, in order to derive the same gross revenues.

Capitalization per mile of track. Another basis sometimes used for comparing different roads is capitalization per mile of track. Such a study has the advantage of testing the value of the equities behind a particular issue of bonds or stock. In using this base, however, one must consider the nature of the territory served. The former Interborough Rapid Transit (New York), for instance, was capitalized in 1929 at \$824,600 per mile of track operated, while funded debt amounted to about \$686,200 per mile. The Boston Elevated, on the other hand, was capitalized at \$218,200 per mile, whereas funded debt amounted to \$109,400. These figures are not excessive, when one considers the elaborate subway and elevated construction necessary and the extremely heavy traffic handled, especially by the former system. In smaller cities, ranging from 100,000 to 250,000 population, a total capitalization of \$50,000 per mile of track probably is the customary maximum. In such cases bonded debt should not exceed \$25,000 to \$30,000 per mile. In small communities, the local situation is controlling in respect to the value of trackage. Where there is adequate traffic to assure profitable operation, trackage may have a value as high as \$20,000 to \$30,000 a mile. In other cases, where traffic is so light that operating costs are not being met, trackage may be worth only its junk value.¹⁹

Operating ratios, capital structure, charges, and earnings. Regarding the matters of operating ratios, the relation of funded debt to total investment, and the relation of charges to earnings, practically the same conditions will exist as were previously sug-

¹⁹ Even during the prosperous years 1921 to 1930, inclusive, about 8,267 miles of track were sold under foreclosure. *Statistical Abstract of the United States*, 1931, p. 445. A considerable portion was later abandoned as worthless.

gested for other types of public utility companies. Operating ratios today for a traction company will probably have to average from 70 to 75 per cent if the company is to make a fair return.

In regard to bonded debt and fixed charges, the condition of the industry demands, perhaps, more conservative limits than would be true for electric power and light or gas bonds. Although a succeeding equity which, in terms of market value, equals the amount of bonds outstanding might well suffice in the former case, a succeeding equity of one and one-half to two times the bonds outstanding should be sought in the case of traction bonds. Likewise, charges should be earned, not two times, but preferably from two and one-half to three times, in the case of traction bonds, if one is to obtain protection against further unfavorable developments. Or, the investor may prefer to adopt standards similar to those for other utility bonds and avoid all situations except those in which the traffic situation has become stabilized or shows some favorable growth.

Maintenance and depreciation policies. A constant check on the maintenance and depreciation policies of the company is likewise very important. Because of the tendency in major companies to use various kinds of equipment, standards are difficult to set. The age of the equipment of the particular company should be studied. In general, since 1913 the poorer financial condition of the traction companies has resulted in inadequate maintenance, depreciation, and replacement.³⁰ The proper maintenance of equipment is essential if invested capital is to retain the value at which it is shown in the accounts and if income is not to be misstated. Experience also shows that reasonably modern and comfortable equipment is an important factor in retaining traffic.

The traction problem. In the more congested metropolitan areas, the need for traction service continues because in no other way can the mass transportation of the working population to the shopping and the industrial sections be handled. Compared with the private automobile or even the ordinary bus, the street-car or train can handle a much larger number of persons with less congestion.

In many cities, particularly where the service has threatened to break down under private management, the importance of

³⁰ Passenger equipment of various types ordered since 1912 may be studied in *Transit Journal*, Vol. 84, p. 9 (January, 1940). Total equipment as of December 31, 1939, is found in *ibid.*, p. 8.

such personal transportation has been evidenced by the assumption of the burden by the municipality. An interesting case is that of New York City where the backbone of the system has consisted of subways, elevated, and surface lines. Because the retention of the five-cent fare had been made a political issue it was impossible to raise fares to cover the higher costs that followed World War I. Financial debility set in. The Interborough Rapid Transit Company was reorganized in 1922 but returned to receivership in 1932. Meanwhile, the city found it necessary to advance funds where new construction was required to keep pace with expanding service needs. Finally, in 1940, after protracted negotiations, the city took over the system by offering its own general credit obligations for the securities of the Interborough and the Brooklyn-Manhattan Transit Company. In view of the potential political repercussions that would accompany an attempt to increase fares, it is likely that the taxpayers will continue to subsidize the system.

In communities where traffic is lighter, the bus, which requires much less capital investment, has taken the place of the street railway. The securities of bus companies are generally classed as the most speculative of utility issues. Actually many of the economic characteristics of their business, such as higher capital turnover and operating ratio, resemble those of the industrials. Each company and security should receive individual consideration. Ability to hold traffic, to earn a reasonable return, and to provide comfortable modern equipment through an adequate program of replacement are essentials of a sound company, whether a street railway or a bus company.

Water Companies

General. The supplying of water is one of the oldest forms of utility service. Important as the industry is to the public, it does not occupy a commensurate place in the field of investment. In many communities, particularly in the larger ones, water systems are owned and operated by the municipality itself. Accordingly, most of the privately owned water works that exist in this country are found in small communities. Only nine cities of the United States with a population in excess of 100,000 now have privately owned plants. (A few other private companies serve areas or groups of communities with this population total.) Furthermore, even in smaller cities, there is a tendency toward

municipal ownership. Where private water companies operate, an unsatisfactory political situation often reacts on the popularity of the security.

Sources of supply; territory; population. In an examination of the securities of privately owned water companies, the recommended procedure is much the same, in general outline, as that suggested for other utility companies. One should start first with a study of those broader elements of the situation, such as sources of supply, territorial characteristics, and population. One of the most important factors that make for stability in the earnings of water companies is an adequate supply of pure water. It is true that impure water may be made satisfactory by the use of filtration plants, but the process involved adds to production costs. The five most common sources of water supply are as follows: lakes, ponds, springs, rivers, and artesian wells. It is of the utmost importance that the supply, whatever its source, be constant. With lakes, ponds, and rivers, much depends upon the drainage and the regularity of rainfall in the area served. Where the rainfall is irregular, adequate reservoir facilities are necessary to assure supply during times of drought. With artesian wells, there is less dependence on rainfall, yet a sustained drought may jeopardize this supply also.

The nature of the territory served by the water system is also an important factor to analyze. Here our interest lies in the extent to which gravity, instead of a pumping plant, may be used as a means of distribution. The nature of the soil and the character of the topography also make a difference in the cost of installing and maintaining mains. The density and average per capita wealth of the population in the area served will determine the extent to which plant and equipment can be utilized profitably. Plants serving sparsely settled territories naturally require a much heavier investment in relation to sales than do thickly populated areas. Similarly, wealthy communities use more water per capita than do poorer ones. The problem of distribution for water companies is similar to that for gas companies, and it is possible to work out the same kind of data on density and utilization for the former as was done for the latter. For example, in comparing one company with another, "customers per mile of main," "population per mile of main," or sales (either in terms of dollars or cubic feet of water) will all prove valuable ratios.

Capitalization statistics. Similar investigation may be made in respect to capitalization. Thus, we may compare the capitalization "per mile of main," "per thousand cubic feet of water sold," "per dollar of gross revenue," or "per customer" of different companies. It will be found that many of the better-managed companies are capitalized from \$35 to \$45 per capita of population served. Cities and towns under 50,000 population should not be capitalized substantially over \$40 per capita. Larger cities can safely show a somewhat higher capitalization if the use of water is greater per customer, although, as a rule, capitalization per capita will be lower in the larger cities.

Most of the investment in water companies is fixed, and because of the marked stability of earnings, one may expect to find a relatively high ratio of bonds to stock equity among such companies. Normally, operating ratios will be low for such companies, because very little labor is required except that used in connection with maintenance and repairs. The fact that so large a part of the cost of water service is for the use of capital and that municipal credit commands a lower interest cost than does private corporate credit largely explains why this field is favorable to municipal ownership.

Maintenance and depreciation. The problem of maintenance and depreciation is present in the case of water companies as in that of other public utilities. While depreciation of a water plant may be slow, it is nevertheless sure. However, the aggregate depreciation rate to be applied in different companies will vary. If one company is required to operate an elaborate pumping plant while another depends upon gravity, the former may be expected to have a higher depreciation rate than the latter. In any event depreciation is recognized by the courts as a legitimate charge against earnings of water companies no less than of other utilities.²¹

Investment risk and the franchise. Were it not for the possibility of the condemnation proceedings that at all times threaten private water companies, very little investment risk would be present. Water companies supply the most necessary of all utility services and unquestionably enjoy the greatest sta-

²¹ *Knoxville v. Knoxville Water Company*, 212 U. S. 1, 14, 29 Sup. Ct. 148, 152, 53 L. Ed. 371; *Des Moines Water Co. v. City of Des Moines*, 192 Fed. 193. Although the matter at issue in the Knoxville case was the right of a company to charge depreciation, the case is often cited to show the attitude of the courts toward depreciation in general.

bility of demand for their product. There is no substitution for the products of the water company. Fluctuation in earnings arising from changes in demand are almost unknown. Furthermore, the credit risk inherent in private enterprises is eliminated, for, if payments are not promptly made upon the rendering of statements, the supply is cut off. Many companies, in order to avoid risk, even require from some customers advance deposits which are equal to the charge for normal consumption for one or two months.

The existence of a long-term franchise is not necessarily a protection against possible confiscation, because a municipality may take over property by condemnation and obtain an unfairly low valuation in the settlement. A more desirable situation is that in which the franchise contains a clause defining the exact conditions under which the city may purchase the property. There is then less likelihood of a dispute over the price and terms of acquiring the property.

The danger of confiscation is, of course, minimized where rates are equitable and reasonable. Where a high rate is necessary to enable the company to show a proper return on its capital, the situation is not entirely desirable, inasmuch as high rates, regardless of the ultimate return afforded, engender a feeling of hostility. Where rates and the resulting return are both reasonable, private operation may be tolerated for an indefinite period.

Market for water company securities. Bonds of private water companies, and particularly stocks of independently operated water companies, are not a well-known type of investment. The market for such securities is therefore narrow. Nevertheless, issues of the better-managed companies invariably sell on as favorable a basis as other utility issues, often because of the local demand that exists for such securities. It cannot be said, however, that the bonds of smaller water companies in distant locations are an attractive investment for the average investor. It is true that there may be a minimum of investment risk, yet a definite knowledge of this fact cannot always be easily established, and the outsider often pays a premium to account for a local prejudice in favor of the issue. In a particular case, local politics or contested features in the franchise may create risk which may prove disagreeable to the outside investor, and which the local investor is often in a much better position to anticipate because he is able to keep constantly in touch with the changing situation.

Telephone and Telegraph Companies

Organization of the industry. The telephone field in the United States is dominated by the American Telephone & Telegraph Company, and practically all the telegraph business of the country is controlled by the Western Union Telegraph and Postal Telegraph companies. The American Telephone & Telegraph Company at one time owned about one fifth of the total common stock of the Western Union Telegraph Company and attempted to coördinate the activities of the two companies, but was obliged to abandon this plan in 1913 on account of the attitude of the Government.²² At the present time there is no connection between these three companies.

Development of the telephone. The telephone industry in this country has shown a remarkable development. The figures in the table on this page show this growth as reflected in the number of telephones, operating revenues, and investment in plant and equipment.

GROWTH OF THE TELEPHONE INDUSTRY: 1902-1937*

(000 Omitted)

Year	Number of Telephones	Operating Revenues	Plant & Equipment
1902	2,371	..	.....
1907	6,119	.....	.....
1912	8,730	.....	.....
1917	11,717	\$ 382,830	\$1,492,329
1922	14,347	665,568	2,205,183
1927	18,523	1,023,574	3,548,875
1932	17,424	1,061,530	4,791,908
1937	19,453	1,180,028	5,001,803

* Compiled from *Statistical Abstract of the United States*, and Bureau of Census, *Census of Electric Industries, Telephones, and Telegraphs*, 1937, p. 3.

Almost all telephones are connected with the long distance network of the Bell system (American Telephone & Telegraph Company), but about 4,121,000, or 21 per cent, were owned by independent companies in 1937. It is thus evident that any discussion of telephone and telegraph securities must deal very largely with the Bell system, which consists of the American Telephone & Telegraph Company and associated companies.

Analysis of American Telephone & Telegraph Company. The American Telephone & Telegraph Company owns a controlling interest in nineteen companies and a minority interest

²² Stehman, J. W., *The Financial History of the American Telephone & Telegraph Co.* (Boston: Houghton Mifflin Co., 1925), pp. 147-154.

in two companies associated with it in the Bell System. It also has substantial holdings in the Canadian and Cuban systems. It owns and operates the toll lines which link the system together and owns practically all the stock of the Western Electric Company, which manufactures equipment and supplies. The income that the American Telephone & Telegraph Company receives, therefore, consists of dividends and interest paid on its security holdings, and of payments received for services rendered under contracts with subsidiary companies, which services include the furnishing and maintaining of telephone instruments, provision for interconnections between regional operating companies by long distance lines, short-time as well as permanent financing, developmental research, and patent protection in connection with the art of telephony. As with holding companies in general, here also we must consider real earnings to be, not the actual dividends and interest received from securities of subsidiaries owned, but the proportionate equity in undistributed earnings of subsidiaries.

Financial condition of parent company. Earnings of the parent company have shown a consistent and fairly regular annual increase for many years, as might be expected from the dominant position of the company and the data given above. The expansion of earnings for the common stock equity may be seen by decades from the following table:

NET INCOME AND DIVIDENDS PAID*

<i>Year</i>	<i>Net Income†</i>	<i>Dividends Paid</i>
1900.....	\$ 5,486,068	\$ 4,078,601
1910.....	26,855,893	20,776,822
1920.....	51,821,216	35,376,793
1930.....	165,544,707	139,238,073
1939.....	172,586,539	168,181,146

* Compiled from annual reports.

† Net income of holding company, not consolidated.

This growth has been balanced by regular increases in the number of shares outstanding. In only two years between 1900 and 1930 were there any decreases in net profits: in 1906 and in 1914 slight recessions were registered. The management has aimed at stability and investment standing for its common stock, and consequently the record shows no spectacular stock dividends or split-ups and the dividend record has been steady. However, there have been opportunities from time to time for subscription to new stock on a favorable basis. In the recent

years of depression, surplus has been drawn upon to maintain a regular dividend rate, as shown in the following table:

AMERICAN TELEPHONE & TELEGRAPH COMPANY

PER SHARE EARNINGS[†]

<i>Year</i>	<i>Consolidated System</i>	<i>Holding Company</i>	<i>Dividends per Share</i>
1939	\$10.18	\$ 9.24	\$9.00
1937	9.76	9.62	9.00
1935	7.12	6 74	9.00
1933	5.38	7.37	9.00
1931	9.44	9.05	9.00
1929	15.22	12.67	9.00
1927	13.69	11.76	9.00

[†] On average shares outstanding.

The maintenance of dividends from previously accumulated surplus is a sound policy so long as it does not reduce the working capital position unduly. Such a policy may arouse the attacks of utility baiters but is much appreciated by a legion of stockholders, small and large. The strength of the capital structure position may be judged from the fact that the bond interest of the American Telephone & Telegraph Company, when added to the interest and preferred dividends of subsidiaries, was earned over three times even in 1933.

The monopolistic character of the industry, the vitally important part it plays in our economic structure, its favorable public relations and conservative policies which should result in reasonable regulation, and its splendid financial record, all combine to give the securities of the company a high rating at the present time.

Subsidiary company investments. In analyzing the securities of the subsidiary companies of the Bell System, it is necessary to determine the past earning record of the company under consideration, its opportunities for growth, the attitude of local regulatory bodies, and its capital structure. The bulk of the underlying securities are bonds of the subsidiaries and enjoy very high ratings. A few of the subsidiaries, such as Pacific Telephone & Telegraph, have preferred issues which rate high even though, as a result of large margins of assets and earnings, they are junior to bonds. A few of the subsidiaries, particularly New England Telephone & Telegraph, Mountain States Telephone & Telegraph, and Pacific Telephone & Telegraph, have, in the hands of the public, common stocks which also rate well.

Independents limited. While there are a number of independent telephone companies in the United States, they operate only a limited number of the country's total stations. Investments in such companies should be made cautiously and only after a careful survey of the territory in which they operate and of their relations with the Bell system, and a thorough study of their earnings and capital structure. An analysis of maintenance and depreciation policy is particularly important. It is generally true that small independent companies—that is, companies with a gross income of less than \$1,000,000—are at a distinct disadvantage in respect to overhead costs and consequently do not offer satisfactory opportunities for investment.

Telegraphs. Over four fifths of the land telegraph service in

OPERATING RESULTS OF WESTERN UNION TELEGRAPH
COMPANY: 1926-1939*

Year	Operating Gross Revenues	Net Income	Bond Interest	PER SHARE	
	(000 Omitted)	(000 Omitted)	(000 Omitted)	Earned	Paid
1939.....	\$ 95,660	\$ 5,551	\$4,171	\$ 1.32	....
1938.....	91,712	2,551	4,188	1.67 (def.)	....
1937.....	100,483	7,721	4,395	3.18	\$2.25
1935.....	89,869	10,603	5,344	5.03	..
1933.....	82,309	9,718	5,353	4.18	...
1932 ..	83,014	7,603	5,356	0.81 (def.)	2.50
1929.....	145,667	19,085	3,610	15.12	8.00
1928.....	136,450	19,077	3,609	15.11	8.00
1927.....	131,771	18,615	3,584	15.06	8.00
1926.....	134,465	17,631	2,426	15.24	8.00

* Standard Statistics Co., *Individual Corporation Descriptions*.

the United States is handled by the lines of the Western Union Telegraph Company, and through its cable system and connections telegraph communication is established with all parts of the world. The magnitude of the company is indicated by the fact that at the end of 1939 the system comprised 211,530 miles of pole lines, 4,070 miles of land cable, 30,324 nautical miles of ocean cables, and 19,543 telegraph offices. Total miles of wire operated approximated 1,900,000.²³

Formerly a very strong company, the earnings have been poor in recent years. However, funded debt and bank loans were reduced by \$22,324,000 between June 30, 1933 and the end of 1939. At the close of 1939 there were \$83,221,000 of funded debt outstanding and \$104,527,744 of common stock (exclusive of a small

²³ Standard Statistics Company, *Individual Corporation Descriptions*.

amount of subsidiary stock). The surplus account stood at \$75,-741,790. The book value of the common stock was thus about \$177 per share. The figures on page 453, taken from the income accounts, explain the high regard in which the company's securities were held prior to the depression. The increase in interest charges in 1930, at the very time income began to decline, caused the coverage in subsequent years to fall below the conventional "two times earned." The passing of the dividend in 1932 terminated a 59-year record of continuous payments. It is apparent that the stability found in the other utility fields is no longer present here.

The Postal Telegraph system, originally built by John William Mackay to compete with Western Union and so spite Jay Gould, has occupied a much smaller place in this field. In 1928 control was acquired by International Telephone and Telegraph Company. In 1935 the Postal Telegraph Company, unable to meet fixed charges, petitioned the courts for permission to reorganize under Section 77B of the Federal Bankruptcy Act, and a plan was consummated in 1940. In view of the decreased prosperity of the telegraph business and its regulated utility character, a merger of Postal and Western Union would appear logical. Increased competition from telephone, teletype, and air mail has removed the "monopoly" danger of such a merger, save perhaps in political minds. The Federal Communications Commission has recommended (1940) that Congress authorize a consolidation.

Railroad Securities—General

Importance of railroad securities in American finance. Railroads were the first group of corporations to achieve large public interest for their securities. Until the past decade their bonds held first place in the opinion of conservative investors. Public utility bonds, which have come to usurp this position, arrived on the scene much later. Industrial securities had only a limited public following until the great merger movement that took place around the turn of the century, and industrial stocks did not have a really broad distribution until after World War I. They still lack the aura of conservatism regarded as essential for institutional investment portfolios. But, even though the hardships of the 1930's have greatly damaged their position, railroad securities still occupy an important place among American corporate securities.

Capital requirements of the railway industry. The total par value of all railroad securities outstanding at the end of 1938, according to the Interstate Commerce Commission, was \$22,202,000,000.¹ Only in recent years has the volume of railroad securi-

¹ These were divided as to type in the following amounts:*

(Millions of Dollars)

Mortgage Bonds	9,801
Collateral Trust Bonds	781
Income Bonds	313
Miscellaneous Obligations	882
Equipment Trusts	446

Total Funded Debt 12,223

[Footnote continued on next page]

ties failed to exceed that of utility securities. Not only does the following table show the nominal or par amount of securities outstanding for the year 1937, but also, by adding in the surplus, the total book value of the three major divisions of corporate securities is obtained.

ESTIMATED BOOK VALUE OF OUTSTANDING SECURITIES
OF NONFINANCIAL CORPORATIONS: 1937*

(Millions of Dollars)

	<i>Railroads†</i>	<i>Utilities</i>	<i>Industrials</i>
Bonded Debt	10,173	15,864	7,461
Preferred Stock	1,867	2,919	7,403
Common Stock	6,256	16,072	31,512
Total	18,296	34,855	46,376
Surplus	3,174	4,304	24,086
	21,470	39,159	70,462

* Estimates compiled from U. S. Treasury Dept., *Statistics of Income for 1937*, and Interstate Commerce Commission, *Statistics of Railways in the U. S., 1937*.

† Class I roads only.

The utilities include a number of subdivisions, and although the largest of these, the electric light and power industry, is gaining in size, it does not yet exceed the steam railroads in dollar significance. However, both the bonded debt and total capitalization of about one third of the railroads are likely to be reduced in pending reorganizations. The "industrial" division includes an even wider variety of industries.

Stability of railway earnings. Reasons other than mere size are necessary, however, to account for the former status of railway securities as premier investments. The services that the principal carriers of this country rendered were, of course, indispensable.² For this reason, there was in the railroad industry a certain stability in earnings and property values, characteristic of most public utility industries, but lacking in most industrial enterprises, which may be displaced by competing units. In

Preferred Stocks	2,041
Common Stocks	7,938
Total Stocks	9,979
Total Capitalization	22,202

* Interstate Commerce Commission, *Statistics of Railways in the U. S., 1938*, p. 8-126.

² Recently the increasing competition of other carriers has taken away a measure of this indispensability, particularly in the case of short hauls. However, the railroads continue to carry the bulk of the freight tonnage of the country.

the past, railroads were also enjoying steady growth, which tended to offset the forces of contraction in a period of business depression. Railroad traffic and earnings have always fluctuated in sympathy with business conditions, but during the past decade they have been most seriously affected by adverse conditions. As a result, railroad securities have largely lost the attraction which they enjoyed a few years ago as investment media.

Desirability of commission control. Because of their public utility character the railroads are regarded as natural objects of commission control. Under such control unification is possible, permitting the economies of large-scale operation, yet the public is safeguarded against unreasonable rates. The legal justifications for legislative or commission control of public utility enterprises have already been discussed at length in previous chapters and will not be reiterated at this point, for precisely the same arguments apply to the railroad industry as apply to public utilities.³ However, competitive railroad building has been abandoned, although the idea of competition has not been entirely discarded, and mergers of competing lines are still looked upon askance. Nevertheless, rates are now initiated, not only by the roads but by the Interstate Commerce Commission, and such competition as is effected, therefore, must be in matters of service, not of charges. Consequently railroads are not subject to the same forces of direct competition that are found among industrial enterprises. They suffer more from the indirect competition of substitute forms of transportation—private automobiles, buses, trucks, pipelines, waterways, and the airplane—and from changes in the business character of the territory served, such as might arise from loss of natural resources or shifting of trade to other areas.

Effect of commission control on profits. In our study of public utility investments, it was found that commission control, where it is exercised in an enlightened manner, has a beneficial effect on the operating company. Of course, such control may be burdensome, and, even though it is not the intention of the legislature or commission to assume an arbitrary position, the inability of commissions to recognize changing economic conditions as rapidly as necessary sometimes operates to the disadvantage of the regulated industry. The commission is a quasi-judicial body and acts only upon consideration of proper evidence. Accordingly, when operating costs advance rapidly, as

³ See Chapter 15.

they did during and after the first World War, it is impossible, in many instances, for the various utility and railroad commissions to act on applications for rate increases in sufficient time to relieve the regulated companies from all losses. Nevertheless, where judiciously exercised, commission control is on the whole advantageous to investors in public utility enterprises.

Development of control by Interstate Commerce Commission. At first the railroads of this country were regulated largely by state legislatures or state commissions. In 1887 the Interstate Commerce Commission was created for the purpose of regulating railroads engaged in interstate commerce. The commission at that time was granted the power to determine reasonable maximum rates and to require accounting reports at such times and in such forms as it saw fit. Discrimination and pooling were forbidden, and rates were required to be published. The act, however, was not clearly worded in all sections, and a long series of legal battles was fought over disputed points. The courts in many cases decided in favor of the railroads. Additional legislation therefore became imperative.

The first important amendment to the original act was known as the Elkins Amendment of 1903. This amendment dealt largely with the evils growing out of personal discrimination and rebates and did not greatly enlarge the powers of the commission. The Hepburn Act of 1906, however, did increase substantially the commission's powers. Of particular significance to us was the power given to the commission over rates at that time. This act provided that whenever, after a complaint and a full hearing, the commission should be of the opinion that the rates of common carriers, or their regulations and practices affecting such rates, were unjust and unreasonable, it was empowered to prescribe the maximum rates and the regulations and practices thereafter to be observed. Furthermore, the commission's orders (except for the payment of money) were to take effect within not less than thirty days and to continue in force for not more than two years, unless suspended or set aside by the commission or the courts. The power of the commission over railroad accounts was likewise enlarged. The act of 1887 was made effective for the first time. The necessary mandatory provisions were applied by the so-called Hepburn Act, which provided that the detailed annual reports to be rendered by the carriers must be made under oath and filed with the commission within three months after the close of the year to which they

apply. Furthermore, the commission might call not only for annual reports, but also for monthly reports of earnings and expenses, and for special reports. The commission was even given the power to prescribe the forms of all accounts kept by the roads, and no other accounts might be kept than those prescribed or approved by it. It had the further right of access at all times to accounts of the road and authority to employ special examiners for purposes of audit and inspection. Severe penalties were prescribed for violations, particularly where false entries were willfully made.

The next important revision in the powers of the commission was made in the Mann-Elkins Act of 1910. From our standpoint, the most significant change made at this time again pertained to control over rates. This act provided that, whenever, any new rate, fare, or classification was filed with the Interstate Commerce Commission, the commission should have authority, either on complaint or on its own initiative without complaint, to enter upon a hearing concerning the propriety of the proposed change. The old rate or classification remained in force, pending the hearings and decision on the application, for a period of 120 days beyond the time when they would have gone into effect. If the commission was unable to decide the case within 120 days, an extension of six months might be made. Under the provisions of this act the entire burden of proof as to the reasonableness of the proposed rates rested on the railroad and not, as hitherto, on the commission.

There were other important provisions in the Mann-Elkins Act, particularly those applying to the long- and short-haul problem, and to the institution of the short-lived Commerce Court. It was the broad extension of the rate-making provisions, however, that had the most important effect on the investment status of railroad securities.

The act of 1910 authorized the commission to suspend proposed changes in rates, and, if it found them unreasonable, to prevent them from going into effect. This, however, required some sort of yardstick by which reasonableness could be measured. In other words, the question of "fair value" for rate-making purposes was immediately raised. In 1913, therefore, Congress passed the so-called Valuation Act, which directed the commission to ascertain the value of all the property owned or used by every common carrier subject to the provisions of the act. More specifically, it was directed to ascertain and report

in detail as to each piece of property used for common carrier purposes, the original cost to date, the cost-of-reproduction-new, and the cost-of-reproduction-less-depreciation, and to indicate the methods by which these costs were obtained. Properties acquired by gifts were to be separately shown. While the commission was empowered to prescribe the method of procedure to be followed in carrying out its investigations, and the form in which results were to be submitted, nevertheless it was required to show the value of the property of every carrier as a whole and to show separately the value of its property in every state and territory. The work of valuation, begun in 1913, finally resulted in tentative or final valuations for the transportation property of the various railroads, but, for reasons which are discussed later, they have almost no present investment significance.⁴

Effect of Mann-Elkins Act on railroad rates and earnings. The decade from 1910 to 1920 witnessed changes of a revolutionary nature in our economic structure. The effects of the first World War, with its abnormal inflation in prices of commodities and wages, are familiar to all students of economics. Had the situation as it existed in 1910 changed only gradually, it is probable that many years would have passed by before any marked change would have taken place in the attitude of the commission and of Congress toward the railroad problem. During the first years that the Elkins Act was in effect, reasonable rates meant rates favorable to the shipper, and not to the railroads. The commission consistently refused to assume any obligations to assist the carriers in earning a fair return on their property values and moved very reluctantly during this period in granting any increases in rates. The relief that the roads might obtain from the courts was also delayed because of the length of time required to hear rate cases. Moreover, the losses incurred through inadequate rates pending hearings were irretrievably lost so far as the roads were concerned. In fact, from 1910 to 1920, railroad earnings were so seriously affected by advancing costs and adverse decisions in respect to applications for higher rates that new capital investments were discouraged.

Shortly after the passage of the Mann-Elkins Act of 1910, the railroads applied for increases in rates on the plea that higher operating costs were reducing their profits below reason-

⁴ See page 464.

able levels.⁵ In February, 1911, two decisions were rendered by the commission in which the requests for higher rates were denied.⁶ The next important decision dealing with the carriers' application for advanced rates was the so-called Five Per Cent Case, decided on July 29, 1914.⁷ In this case the commission found the net operating income of the railroads in "official classification" territory (trunk line territory) to be smaller than was demanded in the public interest, but it gave very little relief. It approved, with some exceptions, an increase of 5 per cent, as requested by the railroads, on intraterritorial class or commodity rates in certain parts of this territory only. Other requests were denied. Soon after the outbreak of the World War, the entire 5 per cent advance as requested was allowed (December 16, 1914).⁸ On July 30, 1915, and again on June 27, 1917, two other cases were decided, involving advances in rates.⁹ The first case involved advances in rates on "western classification" territory; the second, advances in all territories. Such increases as were granted, however, were inadequate to meet rapidly rising costs.

Effect of low earnings on railroad credit. The attitude of the commission up to this time had been such as to destroy confidence in railroad securities. Total net operating income of all Class I railroads failed to show any important increase from 1912 to 1920, except for 1917, when substantial advances were granted to meet war conditions. After 1917 earnings declined, reaching extremely low levels in 1920. Figure 17 illustrates the effect of low railroad rates and advancing costs on net railway operating income during that period.

The commission's attitude during this difficult period was passive: it did not consider itself under any obligation to assist the roads to earn an adequate return on their property values. This fact, combined with the results of Government operation from January 1, 1918, to March 1, 1920, brought the state of railroad credit to an extremely low point. The situation was so acute at the beginning of 1920 that substantial relief was neces-

⁵ The Mann-Elkins Act, it will be recalled, gave the commission power to suspend the operation of new rates for a period of 120 days pending a hearing as to reasonableness. If this was insufficient, an additional period of six months was allowed.

⁶ 20 *I. C. C. Reports*, 243-306 (eastern case), and 307-399 (western case)

⁷ 31 *I. C. C. Reports*, 351-454.

⁸ 32 *I. C. C. Reports*, 325-354.

⁹ See 35 *I. C. C. Reports*, 497-681, and 45 *I. C. C. Reports*, 303-355, respectively

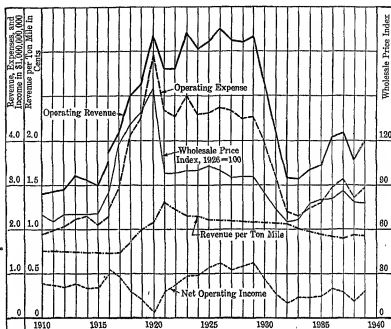


Figure 17—Long-Term Revenue and Expense Comparison of All Railroads.

sary at once if the carriers were to secure the capital necessary to make such extensions as were absolutely required by the rapid expansion that had taken place in other industries from 1910 to 1920.

Transportation Act of 1920: rate-making powers. This relief was given through the passage of the Transportation Act of 1920, which marked a radical departure in the philosophy of government regulation of railroads. Again, the most important provisions of the act pertain to the rate-making powers of the commission. For the first time since 1887, the Interstate Commerce Commission was given complete power to establish rates for all carriers in respect to interstate commerce, but with the provision that "rates shall be adjusted from time to time so that the carriers as a whole, or as a whole in each rate group or territory, will, under honest, efficient, and economical management and reasonable maintenance expenditures, earn an annual net railway operating income, equal, as nearly as may be, to a fair return upon the aggregate value of the property of such carriers held for or used in the service of transportation." In order

properly to carry out this provision, it was necessary for the commission to expedite its valuation work. Pending the computation of final valuations for the various railroads, the commission was directed to make tentative valuations as a basis for rate-making. During the first two years, beginning March 1, 1920, the commission was required to adopt 5.5 per cent as a fair return on the actual value of railroad properties; at its discretion, however, it might add a sum not to exceed a total of one half of one per cent for improvements, betterments, or equipment chargeable to capital account. In May, 1922, the commission handed down a decision that "on and after March 1, 1922, a fair return upon the aggregate value of the railway property of the carriers as defined in section 15a of the Interstate Commerce Act, determined as therein provided, will be 5.75 per cent of such aggregate property value as a uniform percentage for all rate groups or territories designated by this commission."

Liberal as the act of 1920 was in the light of the past treatment that the roads had been accorded, it hardly erred in granting the roads too much. It can scarcely be said that a 5.5 or 5.75 per cent return is excessive, particularly when one recalls that often public utilities were allowed to earn between 7 and 8 per cent.

Because much railroad business is between terminals and important business centers, and consequently some competition exists, rates must be made for the roads as a group in a given territory. This system of rate-making explains why the act called for a fair return on the *aggregate value of railroad property in the rate territory*, rather than on the property of the individual company, as in the case of the utilities.

Under such an arrangement, fortunately situated or exceptionally well-managed railroads could earn considerably in excess of the established fair return. To counterbalance this advantage, the act provided that if the net railway operating income of a road in any year were in excess of 6 per cent of the value of the property, it should be utilized as follows: (1) one half of such excess shall be placed in a reserve fund maintained by the railroad; and (2) the remaining one half shall go into a general railway contingent fund, to be controlled by the Federal Government and used for loans to needy roads unable to finance through ordinary channels. This clause, known as the recapture clause, was contested in the courts and upheld by the Supreme Court, January 7, 1924.¹⁰ Because of unsettled disputes over the valua-

¹⁰ Dayton-Goose Creek Ry. Co. v. United States, 263 U. S. 456.

tion base, only negligible amounts were collected under the recapture clause, and these were returned when Section 15a of the Transportation Act of 1920, which laid down the principle of fair return and recapture, was repealed by the Emergency Act of 1933. Paragraph two of this amendment provides:

In the exercise of its power to prescribe just and reasonable rates, the Commission shall give due consideration, among other factors, to the effect of rates on the movement of traffic; to the need, in the public interest, of adequate and efficient railway transportation service at the lowest cost consistent with the furnishing of such service; and to the need of revenues sufficient to enable the carriers, under honest, economical, and efficient management, to provide such service.

Such a vague provision naturally leaves the problem of administration unsolved, and when, and if, railroad traffic and earning power return to a more prosperous state than existed in the 1930's, the twin problems of regulation—the rate of return to be allowed and the valuation upon which the rate is to be computed—will arise once more. Furthermore, if earnings become substantial and the stronger roads earn a high return on investment under a system of rates that represents a fair average level for a given territory, agitation for the reenactment of a provision equivalent to the discarded recapture clause would seem likely.

Railroad consolidations. Another interesting phase of the attitude of the government in respect to the private operation of railroads pertains to consolidations. The Transportation Act of 1920 contemplates the ultimate consolidation of all the railroads of the United States into a limited number of competing systems, and, under one of the provisions of the act, the Interstate Commerce Commission is directed to prepare a plan for this purpose. In the original act the provision was not compulsory, although since 1920 efforts have been made to compel action on the part of the roads toward consolidation. The first step taken by the commission under the 1920 act was to engage Professor W. Z. Ripley, of Harvard University, to formulate a plan of consolidation. This plan was put forward in 1921 as a basis for discussion.¹¹ Hearings on this plan were held in 1922 and 1923, and the case was submitted in 1924. The matter was held under consideration for several years, and in December, 1929, the commission announced a final plan of consolidation. This plan provided for the consolidation of all railroad properties

¹¹ An outline of this plan will be found in the *Commercial and Financial Chronicle*, Vol. 113, pp 1429-1431, 1950-1952.

in the United States into twenty-one major systems, distributed as follows: two New England systems; five trunk line systems between New York, Philadelphia, and Baltimore on the Atlantic seaboard, and Chicago, St. Louis, and Kansas City on the west; nine systems in the West; three in the South; and two composed of the Canadian-controlled lines in the United States.¹² The two New England systems would be built around the New Haven and the Boston & Maine. The Atlantic Coast Line, the Illinois Central, and the Southern would operate in the South. The nine Western systems would be built around the Chicago & North Western, the Great Northern-Northern Pacific, the Union Pacific, the Chicago, Burlington & Quincy, the Atchison, Topeka & Santa Fe, the Missouri Pacific, the Chicago, Milwaukee, St. Paul & Pacific, the Southern Pacific, and the Chicago, Rock Island & Pacific-St. Louis-San Francisco combination. Under this plan the five trunk lines would be the New York Central, the Baltimore & Ohio, the Chesapeake & Ohio-Nickel Plate, the Pennsylvania, and the Wabash-Seaboard. However, there has been considerable discussion of a four-system plan to take the place of this five trunk lines system. Minor modifications were made in 1932; among them was the assignment of the Wabash to the Pennsylvania system. The Seaboard Air Line was left unasigned.

The present attitude of our Government in respect to consolidation is logical. Quite apart from the greater economies to be effected, consolidation of the roads into large competing systems will also facilitate the operation of the present rule of rate-making by creating systems of more equal strength. The problem of weak roads, which, if left to operate alone, could never expect to show an adequate return under any reasonable rate structure, is thus eliminated. Competing systems of equal strength may expect to fare alike under the same rate level. The Interstate Commerce Commission does not actually force consolidation of railroads to accomplish its plan, but inasmuch as all changes in control of roads must be approved by it, it can exercise a veto power. In practice, it may consent to consolidations or acquisition of stock control not in accordance with its own plan provided that the general spirit of the act is observed.

¹² For a detailed grouping of roads under this plan, see *Moody's Manual of Investments: Railroad Securities* (New York: Moody's Investors Service, 1931), pp. 1-121. For modifications made in 1932 see *ibid.*, 1933, p. a53, *et seq.* The original plans appear in *I. C. C. Reports*, Vol. 159, p. 522, and Vol. 185, p. 408.

One may anticipate further important developments along these lines in the future.

Security issues, changes in physical assets, and accounting. Of particular interest to the investor is the exclusive control that is given the commission in respect to the issuance of all railroad securities, except notes maturing in less than two years, when the total issues of such notes amount to less than 5 per cent of the road's total capitalization. The commission likewise has jurisdiction over all important extensions or abandonments of present property, as well as over all matters of accounting. The extent of the commission's power over the accounting of the railroads has already been discussed in connection with the Hepburn Act.

The reason for such control is much the same as in the case of public utility companies. Since the commission is charged with the duty of seeing that a fair return is allowed on the value of railroad property used in the public interest, it incurs a certain moral obligation toward the investor in railroad securities. That is, although the commission is in no way actually responsible for the return shown on any investment in the hands of the public, the mere fact that it is required to permit rates that will yield an adequate return on property values places at least a presumptive burden on it in respect to the soundness of the securities issued by the railroad to acquire new property. If it appears that the property to be acquired cannot reasonably be expected to earn an adequate return under reasonable rates, because of anticipated traffic conditions, or if the new financing to be done results in undue charges, which later may be incorporated in property values, it is logical that the commission should be given the right to pass on such matters in advance, thus protecting to some extent the investor, as well as those who might later be required to pay the cost of unproductive financing through higher rates. Finally, control of accounting matters is necessary if earnings are to be properly determined.

Railroad valuation. It has been noted that, as early as 1913, Congress passed the so-called Valuation Act, by which the Interstate Commerce Commission was directed to ascertain the value of all the property owned or used by every common carrier subject to the provisions of the act. It is unnecessary to go into the various theories of valuation at this point, since the problem does not differ substantially from that presented for utilities.¹³

¹³ See Chapter 15.

In the Valuation Act no specific basis for valuation was adopted, but the commission was directed to ascertain and report in detail as to each piece of property used for common carrier purposes, the original cost to date, the cost-of-reproduction-new, and the cost-of-reproduction-less-depreciation. It was also required to indicate the methods by which these costs were obtained, and to report separately all other values and elements of value, if any, and the methods of valuation employed.

In 1920 the commission adopted a tentative valuation of \$18,900,000,000, as of December 31, 1919, in connection with a rate decision.¹⁴ This sum exceeded the outstanding capitalization of \$16,550,310,683 at that date but fell short of the total cost of road and equipment as shown on the books at \$20,040,572,611. As of December 31, 1936, a total valuation of railroad transportation property of \$18,453,055,000 was reported.¹⁵ This total represented original cost of \$21,965,701,000 less depreciation of \$6,148,321,000 plus lands and working capital of \$2,635,675,000. At the same time, a reproduction cost less depreciation figure of \$20,693,951,422 was reported. Since with the passage of time more and more of the assets consist of items purchased and recorded under the accounting rules of the commission, some 70 per cent of the above total represents actual cost rather than estimates of cost, and presumably the total "original cost" figure given above is a fairly accurate measure of the money actually spent for railroad properties, a sum almost exactly equal to the par value of railroad securities outstanding in the hands of the public.

Developments since 1920. The history of railroad regulation subsequent to 1920 will not be discussed in detail.¹⁶ It will be sufficient to state here that very substantial advances in rates, calculated to add about \$1,500,000,000 to their revenues, were granted the railroads in the latter part of 1920. The immediate effects, however, were most disappointing, on account of the heavy decrease in traffic caused by the severe depression that set

¹⁴ *I. C. C. Reports*, Vol. 58, p. 220, *et seq.*

¹⁵ *Proceedings of the Investment Bankers Association of America*. 1938, p. 132.

¹⁶ An excellent résumé of all important action in regard to rate changes, labor legislation, wage changes, consolidations, and similar matters of investment interest will be found in the *Railway and Industrial Compendium*, formerly a section of the *Commercial and Financial Chronicle*. Similar valuable information will be found in the supplementary material published each year in *Moody's Manual of Investments: Railroad Securities* (New York: Moody's Investors Service), and the annual *Review of Railway Operations*, published by the Bureau of Railway Economics, Washington, D. C.

in during 1920 and lasted until 1922. Subsequently, some reductions were made in wages, and the working rules established during the war were revised in 1922. Some reductions were made in railroad rates after 1920, notably on agricultural products, and railroad operating costs were substantially reduced through increased efficiency and lowered material prices. From 1921 to 1926, the amount of freight traffic handled increased

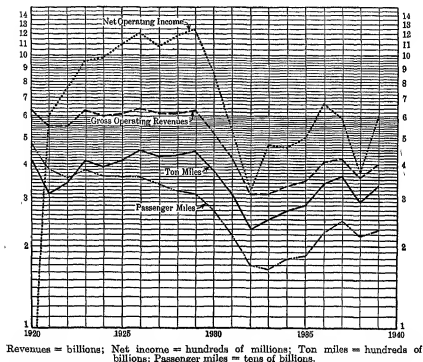


Figure 18—Revenue Traffic and Gross and Net Revenues of Class I Railroads, 1920-1939.

rapidly; after that time it declined moderately, but rose in 1929 to a level slightly above that in 1926. The following depression years showed a precipitate decline until 1932 and a moderate recovery thereafter. The large losses of passenger traffic and the combined data on freight and passenger business, in terms of gross revenues and net operating income, are shown in the accompanying table and in Figure 18, which is on a ratio chart scale and thus shows relative fluctuation. The significance of these figures is discussed in connection with the income account.

REVENUE TRAFFIC AND GROSS AND NET REVENUES
OF CLASS I RAILROADS*

(000,000 Omitted)

Year	Ton Miles	Passenger Miles	Gross Oper. Revenues	Net Railway Oper. Income
1920.....	410,306	46,849	\$6,178	\$ 17
1921.....	306,840	37,957	5,517	601
1922.....	339,258	35,470	5,559	760
1923.....	412,727	37,957	6,290	962
1924.....	388,415	36,091	5,921	974
1925.....	413,814	35,950	6,123	1,121
1926.....	443,746	35,477	6,383	1,213
1927.....	428,737	33,650	6,136	1,068
1928.....	432,915	31,601	6,112	1,173
1929.....	447,322	31,074	6,280	1,252
1930.....	383,450	26,815	5,281	869
1931.....	309,225	21,894	4,188	526
1932.....	233,977	16,971	3,127	326
1933.....	249,223	16,341	3,095	474
1934.....	269,006	18,036	3,271	463
1935.....	365,913	18,476	3,452	500
1936.....	339,246	22,421	4,053	667
1937.....	360,620	24,655	4,166	590
1938.....	290,084	21,629	3,565	373
1939.....	333,438	22,651	3,995	589

* Compiled from the *Statistics of Railways in the United States, and the Review of Railway Operations in 1939*, the Bureau of Railway Economics, p. 23

Effects of Government control on security values. The discussion thus far has been confined to the peculiar situation created for railroad securities by the existence of close Government supervision. Obviously, such supervision has both advantages and disadvantages to investors. If Government control is carried to the point of denying the roads of the country adequate earnings, as was true during the decade preceding 1920, the security holder, particularly the stockholder, is made to suffer. On the other hand, more enlightened control, such as now appears to be in order, reacts to the advantage of the security holder. As the result of control of rates and the limitation of competition, earnings are less fluctuating than they might otherwise be. The publicity and uniformity of railroad accounts enable the security holder to judge values. Control over new security issues prevents exorbitant banking fees and makes injudicious financing less likely.

However, there is always an insistent demand on the part of

shippers for lower rates. The demands of farmer shippers have been particularly pressing. Since World War I their own plight has made them most active and their political weight has made their hostility extremely important. More recently, industrial and agricultural interests in the Southern states have attacked rates in their region as excessive and as thus preventing their shipping products into the rich Northern markets on a parity with producers located in other territory. None of these critics of railroad rates is concerned, as a rule, with the costs of transportation, and all ignore the need for rates adequate to provide the means to insure continued efficient service.

Moreover, the pressure of competition from substitute forms of transportation sets an upper limit to the freight tariffs which can be charged regardless of costs. The railroads have even requested rate reductions in order to retain or to get back traffic. The question they face is whether or not they can hold a sufficient volume of business to enable them to earn a reasonable return on investment at rates which are often set by competition rather than regulation.

The Motor Carrier Act of 1935 was passed with the intention of equalizing the competitive position of railroads by bringing motor carriers engaged in interstate commerce under the authority of the Interstate Commerce Commission. Whether or not any satisfactory scheme of rate regulation can be devised for such a highly competitive group of carriers, which have extremely varied costs of operation and which serve such a multitude of special situations, remains to be seen.

The Transportation Act of 1940 brought almost all carriers, except air carriers, under the common jurisdiction of the Interstate Commerce Commission so as to provide more equal regulatory treatment. Other provisions designed to be helpful to the railroads were included in this act. The initiative for undertaking consolidation plans was returned to the railroads; certain low rates on Government freight provided for under old land grant statutes were eliminated; and the Reconstruction Finance Corporation was given permission to lend to railroads in order that they might purchase their own bonds on favorable occasions, to reduce fixed charges. Probably these measures are valuable chiefly as they represent a more favorable attitude towards the railroads and an appreciation of the need to preserve this basic transportation service. The fundamental problems of the industry will receive further attention as we proceed.

Capitalization. Other matters of general interest to the student of railway securities will now be considered. In considering first the matter of capitalization, one is impressed with the fact that the railroads of this country are large borrowers. The figures in the table below show the amount of bonds outstanding as exceeding that of stocks. The proportion of bonds in total capitalization did not change greatly from 1920 to 1930, moving from 57.4 per cent to 56.6 per cent. The wide use of bonds in this period can be explained by the inability of many roads to sell any securities but bonds in such years as 1920 to 1925, and by the very low rate of interest at which borrowed funds could be obtained. (The most rapid increases in funded debt occurred in the years 1923 and 1924; those in stock, in 1927 and 1928.) These figures are often quoted by those who wish to prove that the railroads were recklessly overbonded in this period. When

COMBINED CAPITAL STRUCTURE OF CLASS I RAILROADS
IN THE UNITED STATES*

	AMOUNTS		PROPORTIONS			
	1920 (Millions of Dollars)	1930 (Millions of Dollars)	Bonds and Stocks		Bonds and Net Worth	
			1920	1930	1920	1930
Bonds.....	9,705	10,795	57.4%	56.6%	48.8%	45.4%
Preferred Stock. . .	1,658	1,906	9.8	10.0	8.3	8.0
Common Stock. . . .	5,552	6,362	32.8	33.4	27.9	26.7
Surplus.	2,983	4,730	...	..	15.0	19.9
Total. . .	19,898	23,793	100.0%	100.0%	100.0%	100.0%

* *Statistics of Railways in the United States*, Interstate Commerce Commission, 1920, pp. XXIV, LXXII; 1930, pp. 8-72, 8-107.

surplus figures are included, however, it is apparent that the chief source of funds from 1920 to 1930 was retained earnings, and that increases in the funded debt supplied but one fourth of the expansion in total capital structure. Individual companies show unfavorably high debt burdens, but the general plight of the railroad industry after 1930 must be attributed to the extraordinary and prolonged depression of earnings to a very low level, rather than to an unduly high ratio of bonds to total stockholders' investment. However, sinking funds are becoming a more common feature of railroad finance.

More recent capital structure figures show little significant change in outstanding bonds and stocks, but a considerable fraction of the former are in default, and the accruing and unpaid interest has greatly reduced surplus for such roads in the process of reorganization. When reorganized, such roads will not only

wipe out these interest claims but will undoubtedly reduce funded debt greatly.

Fluctuations in railroad earnings and business conditions. While traffic volume of railroads fluctuates with general business conditions, they serve as the arteries of commerce and so function in good times and bad. Even in the very depressed years of the 1930's they showed considerable net earnings, although, it is true, the total was insufficient to pay the substantial fixed charges in some years. While particular roads have suffered from the competition of water transport and pipelines, the chief threat has appeared in the auto, bus, and truck in respect to passenger and short-haul freight business, respectively. An examination of Figure 18 (page 468) shows that during the 1920's the effect of this rapidly expanding competition was to flatten out the growth curve rather than to cause an actual recession.

The loss of passenger traffic has been clear-cut and may be permanent. In view of the doubtful profitability of this branch of the business and its lesser importance, this loss should not be overstressed. The backbone of traffic and earning power is in the freight division. The trucking industry has tended to get the high rate, consumers' goods, short-haul business so that freight traffic and revenues will tend to be more dependent upon heavy industry and more fluctuating than formerly. This and allied matters will be considered more fully in the next chapter.

One further point, brought out by Figure 17, is the correlation between wholesale price movements and railroad operating expenses. Since regulation makes rates slow to respond to changing economic conditions, it may be inferred that the railroads will suffer from a rising commodity price level and tend to gain from declining prices, provided the latter do not cause a severe falling off in general business. Thus, in the years immediately after 1920, earnings improved when falling prices lowered operating expenses. In the years following 1929, the declines in traffic volume were too great to be offset by the lowering operating expenses which followed falling prices. Advancing prices and labor costs are disadvantageous in that rates may not be expected to increase as rapidly as prices, owing to the existence of commission control. This situation was clearly illustrated during the 1916-1920 inflation of prices. Even in 1934, the rise in prices boosted railroad operating costs to such a degree that improving traffic and revenues failed to increase the net earnings. It is accordingly desirable for the investor to keep in close

touch with price trends, especially in respect to coal, steel, and wages. The changing balance between operating revenues and expenses can be traced in the following table (Class I railroads are those with annual gross operating revenues in excess of \$1,000,000):¹⁷

OPERATING RATIOS OF CLASS I RAILROADS

1912-1939

Year	Ratio	Year	Ratio	Year	Ratio
1912-1916*	69.9%	1924.....	76.1%	1932.....	76.9%
1917....	70.5	1925..	74.1	1933..	72.7
1918.....	81.6	1926....	73.2	1934.....	74.6
1919....	85.5	1927....	74.5	1935.....	75.1
1920....	94.3	1928.....	72.5	1936.....	72.3
1921.....	82.7	1929....	71.8	1937....	74.9
1922....	79.4	1930....	74.4	1938.....	76.4
1923....	77.8	1931....	77.0	1939....	73.0

* Five years average for fiscal years ending June 30

Data available in respect to railway operations. Further information for both the operations of individual roads and the industry as a whole is easily available to the investor in railroad securities. The most important official sources of information are the various reports issued by the Interstate Commerce Commission. The Interstate Commerce Commission's annual reports and its annual *Statistics of Railways in the United States*, which contains a wealth of financial and statistical data both for individual roads and for all roads combined, are extremely valuable. Before this latter volume is published, preliminary partial reports are available on: (1) operating revenues and operating expenses by class of service; (2) comparative operating averages; and (3) freight commodity statistics of the Class I steam railways. There is also a regular quarterly publication presenting freight commodity statistics. Monthly publications deal with the following: (1) operating revenues and operating expenses; (2) selected income and balance sheet items, which are particularly useful in checking up on current liabilities and funded debt maturing within six months; (3) operating statistics for the larger railroads (annual operating revenues over \$25,000,000); (4) freight and passenger service operating statistics; (5) fuel and wage statistics; and (6) a graphical supplement.

The Bureau of Railway Economics of the Association of

¹⁷ Compiled from *Statistics of Railways in the United States*, Interstate Commerce Commission, and *Review of Railway Operations in 1939*, Bureau of Railway Economics, p. 23.

American Railroads also releases a monthly publication called *Railway Revenues and Expenses*. This publication furnishes data for the month, for the period from January 1 to the end of the month reported, and for the corresponding periods of the previous year on the following: operating revenues and expenses, net operating revenue, operating income, net railway operating income, operating ratio, and the average mileage operated for all Class I Railways. The amounts of such items for the preceding year and the percentages by which current figures exceed or fall short of figures for the previous year are also shown. Freight revenue, passenger revenue, total operating revenues, total operating expenses, net railway operating income, and average miles of road operated, for the period from January 1 until the end of the month reported and for the corresponding period of the previous year, are shown for districts, regions, and individual roads.

The bureau also publishes a special series of bulletins in which the annual *Review of Railway Operations* is a regular feature. It contains a discussion of the important developments occurring during the year, as well as operating and financial statistics. This series also includes special studies prepared at irregular intervals on topics of vital interest.

The investor must also consider the annual reports compiled by the separate railroad companies themselves. These reports present complete and accurate information regarding the operations of each road during the preceding year, and, unlike the financial reports of industrial and public utility companies, they are pleasingly uniform. Every item is similarly handled, and the final form in which the income account and balance sheet of one road are set up is the same as that used by all other roads. The reason for this lies in the fact that the Interstate Commerce Commission has complete jurisdiction over all accounting matters and prescribes the accounting procedure to be followed by all roads doing an interstate business.¹⁸

Territorial survey of important railway systems. Early railroad history in this country was characterized by the growth of innumerable small lines. Gradually, however, well-defined systems came into being which absorbed many of the smaller independent companies. The culmination of this movement is found in the great consolidations which took place during the

¹⁸ See pp. 494, 508, for specimens of such reports.

period from 1890 to 1907. Even though the railroad net was simplified by this movement, at least so far as ownership is concerned, it is still too vast and composed of too many parts to be readily comprehended as a whole. At present over 236,000 miles of road are operated in this country, while the Interstate Commerce Commission lists 169 Class I railroads alone—that is, roads with annual gross revenues in excess of \$1,000,000. The difficulty of sketching a simple picture of this complex structure is apparent.

Freight classification territories. The most general and frequent grouping of railroads, territorially, is into three sections: one section, the eastern district, comprising that portion of the country north of the Ohio and Potomac Rivers and east of the Great Lakes and a line drawn from Chicago through Peoria to East St. Louis and thence down the Mississippi River to the mouth of the Ohio River; another, the southern district, south of the Ohio and Potomac and east of the Mississippi; and a third, the western district, the region west of the first two. This is the geographical division adopted for freight classification purposes.

Geographical grouping of railroad systems. A more detailed geographical division of railroads is into the following groups: roads operating in trunk line territory, covering the Central Eastern and Great Lakes regions; the New England roads; the anthracite coal roads, which are a group of shorter roads within the trunk line territory; the soft, or bituminous, coal roads, located in what is known as the Pocahontas region; the Southern roads, which are south of the Ohio and Potomac Rivers and east of the Mississippi; the Southwestern roads, which run south and west from Chicago and St. Louis but end east of the Rockies; the Central Western; and the Northwestern roads, including the "Grangers." In order to give the student a bird's-eye view of the present railroad map, the more important roads operating in each of these territories are briefly described.

Trunk line roads. Both historically and from the standpoint of amount of traffic hauled, so-called trunk line territory is the most important railroad area in this country. This area may be described as a belt of territory extending from New York and Baltimore on the eastern seaboard to Chicago and St. Louis in the West. The New York Central and the Pennsylvania are the best known roads operating in this area. The New York Central extends from tidewater at Boston and New York

City to Cincinnati, Chicago, and St. Louis. This road has two routes from Buffalo to Chicago—one by the Michigan Central through Detroit, and the other by the Lake Shore through Cleveland and Toledo. The Pennsylvania reaches tidewater at New York, Norfolk, and Baltimore, and extends to Cincinnati, Louisville, St. Louis, and Chicago in the West, covering, of course, the intermediate territory.

The Baltimore & Ohio likewise operates in trunk line territory, extending from Philadelphia via Baltimore, where it reaches tidewater, and Washington to Cumberland, Maryland. Thence it extends to Chicago via Pittsburgh and to St. Louis via Cincinnati.

The Erie is one of the major trunk line carriers from New York to Chicago. While this road reaches the intermediate centers of Cleveland, Cincinnati, and Buffalo, as well as Scranton and Wilkes-Barre, it does not reach directly other large industrial centers in the region, such as Pittsburgh and St. Louis. Consequently it operates at a disadvantage in comparison with some of the other trunk lines. Under the consolidation plan of the Interstate Commerce Commission, the Erie would become a part of the Chesapeake & Ohio-Nickel Plate (New York, Chicago & St. Louis) trunk line system. Such an affiliation would operate to the advantage of all the roads concerned, and, particularly, would overcome the Erie's lack of access to certain cities.

The Chesapeake & Ohio extends from Chicago to Newport News, Virginia. Branches reach Columbus, Louisville, and Washington. Cincinnati, Richmond, and other important cities are also served.¹⁰

Both passenger and freight traffic density is higher, on the whole, in trunk line territory than in any other section of the country. Food and raw materials are carried eastward, while manufactured goods are carried to the west. It is over roads that operate in this territory that the most vital commerce of the country is transported.

New England lines. To the north of trunk line territory and along the eastern seaboard are situated the New England States. Southern New England, comprising southern Massachusetts, Rhode Island, and Connecticut, is essentially different from northern New England, in that it is densely populated

¹⁰ A discussion of the proposed trunk line systems under the Interstate Commerce Commission's consolidation plan is given on p. 464.

and highly industrialized. Except for the Boston & Albany (New York Central line), the only railroad system in this territory is the New York, New Haven & Hartford, which virtually controls transportation in southern New England. This road enjoys a very heavy passenger and freight traffic. Its freight traffic consists of incoming raw materials, coal, and foodstuffs, and outgoing products of New England factories. Operations of this road are characterized by short-haul traffic and diversity in freight. Northern New England is served by the Boston & Maine, which is closely connected with the New York, New Haven & Hartford, the Central Vermont, the Maine Central, and the Bangor & Aroostook.

Southeastern territory. The principal systems serving the area east of the Mississippi and south of trunk line territory are the Atlantic Coast Line, the Seaboard Air Line, and the Southern. The Atlantic Coast Line connects with Washington, D. C., Richmond and Norfolk, Virginia, in the North, and extends along the eastern seaboard to Charleston, Savannah, and Jacksonville on the eastern seacoast. From there it crosses the peninsula to Tampa. This road also controls the Louisville & Nashville, which spreads from Cincinnati to the Gulf at Pensacola. Divisions also reach St. Louis, Memphis, and New Orleans. The Seaboard Air Line traverses nearly the same territory as the Atlantic Coast Line proper. Its northern terminals are at Richmond and Norfolk, although it connects with Washington, over the Richmond, Fredericksburg & Potomac,²⁰ and reaches south as far as Miami and Florida City. It also has terminals at Tampa on the west coast and extends inland to Birmingham and Montgomery in Alabama. The Southern Railway lies further inland than the other two roads in this territory. The Southern serves the territory south of the Ohio and Potomac Rivers and east of the Mississippi. Every state in this area except West Virginia is traversed by the company's lines, which also reach out across Indiana and Illinois to the Mississippi River at St. Louis. The Southern Railway has northern gateways at Washington and Cincinnati, western gateways at St. Louis and Memphis, and reaches tidewater at the ports of Norfolk, Charleston, Savan-

²⁰ The stock of the Richmond, Fredericksburg & Potomac Railroad is controlled by the Richmond-Washington Company, which, in turn, is owned equally by the Pennsylvania, Baltimore & Ohio, Atlantic Coast Line, Southern Railway, Chesapeake & Ohio, and Seaboard Air Line.

nah, Brunswick, and Jacksonville on the Atlantic, and Mobile and New Orleans on the Gulf of Mexico. It thus serves nearly every important community in the South. Through control of the Chicago, Indianapolis & Louisville Railway Company, jointly with the Louisville & Nashville, entrance to Chicago is made possible.

Traffic of the lines operating in southern territory flows for the most part north and south. The principal products are manufactured goods and foodstuffs, which come from the Central and the North Atlantic States and from the North Central States. Northbound traffic consists of raw cotton, lumber, and some mineral products.

The Illinois Central runs down the Mississippi Valley from Chicago to New Orleans but reaches the Union Pacific at Sioux City. It has principal connections at some 31 major junction points with major roads running east and west, including some on branches to Council Bluffs (Union Pacific), East St. Louis, Indianapolis, Louisville, Shreveport, and Birmingham. Savannah, Jacksonville, and Montgomery are reached through control of the Central of Georgia.

Anthracite coal roads. The roads that carry the bulk of the country's anthracite coal north are the Delaware, Lackawanna & Western, the Reading, the Lehigh Valley, the New York, Ontario & Western, and the Delaware & Hudson. Although these roads run through highly industrialized territory and carry commodities other than anthracite, the latter constitutes such a large portion of their total freight that it is the descriptive name by which they are commonly known.

Bituminous coal roads. Roads whose traffic is made up largely of bituminous coal mined in the Pocahontas region are the Chesapeake & Ohio, already described, the Norfolk & Western, and the Virginian.

Southwestern roads. The group of roads which radiate from Chicago and St. Louis to the South and the Southwest but which do not go to the Pacific Coast is known as the "southwestern" roads. The St. Louis-San Francisco Railway extends from Kansas City and St. Louis southwesterly through Missouri, Kansas, Oklahoma, and Arkansas into Texas, with a line from Kansas City crossing the Mississippi River at Memphis and extending southeastwardly to Birmingham. Another line extends from St. Louis, through the Mississippi Valley to Memphis, and thence to Birmingham, where it con-

nects with the lines to the Atlantic and the Gulf, making it the shortest route from St. Louis to tidewater. Other lines extend from St. Louis into the grain section of Kansas, as well as into Oklahoma and Texas. Its lines form the shortest routes between Kansas City and Memphis, Memphis and Birmingham, St. Louis and Memphis, St. Louis and Tulsa and Oklahoma City, and St. Louis and Fort Worth and Dallas.

There are four other roads that operate in the southwestern area, and do not extend to the Pacific Coast. The most important of these, the Chicago, Rock Island & Pacific, extends from Chicago to St. Paul, to Denver, to Santa Rosa, New Mexico (where it connects with the Southern Pacific to form a through route to the Coast), and to Dallas, Texas. It also extends southerly into Louisiana and southeasterly to Memphis.

The other three roads are the Kansas City Southern, which extends from Kansas City to Port Arthur on the Gulf; the Missouri, Kansas & Texas, which extends from Kansas City and St. Louis to Galveston and San Antonio, Texas; and the St. Louis Southwestern, which runs from St. Louis to Fort Worth and Comanche, Texas.

Central Western roads. Next to be considered are those roads that operate in southwestern territory and that reach the Pacific Coast either directly or by means of affiliated lines. Of these roads the Atchison, Topeka & Santa Fe is pre-eminent. This road extends from Chicago to Kansas City and St. Joseph, Missouri. At this point the various lines diverge in a wide network covering the states of Kansas, Oklahoma, and New Mexico. The main line extends to Barstow, California, at which point it separates into two lines, one extending to Los Angeles and the other to San Francisco. From Los Angeles a line runs south to San Diego, California. A line also extends from Wichita, Kansas, to the Gulf at Galveston, with branches extending to the east and west through Texas. Another line extends to Denver on the north.

The eastern terminal of the Southern Pacific is at New Orleans, whence it extends westward across Texas to El Paso, and thence along the Mexican border to the Coast, where it has terminals at San Diego, Los Angeles, San Francisco, and Portland. This road is the dominating factor in northbound and southbound traffic on the Coast. A line also extends from San Francisco to Ogden, Utah, where connection with the Union Pacific is made for a through route to Chicago. The

connection with the Rock Island at Santa Rosa has previously been mentioned. The Southern Pacific also operates a fleet of steamships between New Orleans and New York City.

The Missouri Pacific extends from St. Louis and Kansas City to New Orleans, Galveston, and El Paso. Another branch extends from Kansas City to Omaha, while at Pueblo, Colorado, a junction is made with the Denver & Rio Grande Western by means of which the Rocky Mountain Region is covered. The Missouri Pacific, jointly with the Western Pacific (which extends from Salt Lake City to San Francisco), controls the Denver & Rio Grande Western, the three roads together forming a system extending from St. Louis to San Francisco. Because the connection with the Pacific Coast is still independent, the Missouri Pacific is often classified as a "southwestern" road. The Union Pacific starts from Omaha and Kansas City, and runs to Denver, Salt Lake City, Ogden, Spokane, Portland, Tacoma, and Seattle. It also has a line extending from Salt Lake City to Los Angeles. At Ogden connection is made with the Southern Pacific for San Francisco.

Northwestern roads. Those roads which extend from Chicago into the agricultural territory west of Chicago, but which do not reach the Coast, are known as the Grangers. The more important of these are the Chicago & Northwestern, and the Chicago, Burlington & Quincy. The former extends from Chicago through Iowa, Nebraska, Wisconsin, Minnesota, and South Dakota. The latter extends from Chicago through the territory south of the Northwestern, but also has lines extending to Montana, through Wyoming. Another line extends north to the Twin Cities.

In contrast to these two roads, the Great Northern, the Northern Pacific, and the Chicago, Milwaukee, St. Paul & Pacific reach the Coast.

The Great Northern and the Northern Pacific extend from St. Paul, Minneapolis, and Duluth to Portland, Tacoma, and Seattle. The Great Northern and the Northern Pacific, however, jointly control the Chicago, Burlington & Quincy, and consequently have direct connection with Chicago. These roads parallel each other, the Great Northern running along the Canadian border, while the Northern Pacific occupies a more southerly position. A plan for unification of these roads was approved by the Interstate Commerce Commission in February, 1930, on condition that they divest themselves of control in the

Chicago, Burlington & Quincy. The condition was too onerous, however, and the plan was dropped in February, 1931. This plan contemplated operation of the lines of these two roads and the Spokane, Portland & Seattle Railway through lease of their properties to a new operating company, the Great Northern Pacific Railway. Both the Great Northern and the Northern Pacific carry substantial quantities of grain and iron ore.²¹

The sketch here given of the transportation system of the United States, while centered around the more important systems, does not include all of the larger roads, nor any of the smaller roads. It does, however, cover the bulk of the railroad mileage in the United States. For the specialist in railroad securities, however, further study is advisable, for the investment standing of various railroads depends on many diverse factors, including the economic development of the territory they serve, the physiography of the country they traverse, and the extent to which they connect with strategic terminals.

²¹ The student of American railway finance will do well to familiarize himself also with the great Canadian railways—the Canadian Pacific and the Canadian National Lines, comprising the old Grand Trunk, the Grand Trunk Pacific, the Canadian Northern, and the Intercolonial.

Analysis of Railroad Securities

Plan of analysis: statistical difficulties. A series of comparisons that may be made of individual roads for the purpose of determining the investment merit of their securities will now be considered. In such a study, the general procedure to be followed is similar in many ways to that used in connection with the analysis of utility or industrial companies. A survey is first made of the road's location, the character of the territory served, its industrial development, the nature of the terrain over which the road runs, and other physical characteristics that have a direct bearing on its profit-making possibilities. Subsequently, the financial structure and operating results of the road may be studied through the various reports rendered either to the Interstate Commerce Commission or to the investing public. The entire problem of railroad analysis is by no means simple, despite efforts that have been made to standardize all railroad reports for purposes of statistical comparisons. There are, after all, many elements that can never be standardized. The character and amount of traffic hauled by any given road, the extent of its mileage, its terminal connections, and the nature of the terrain over which the road operates are all elements that vary for different companies, thus making statistical comparisons exceedingly difficult. This situation is easily pictured by a hasty comparison of two such roads as the New York Central and the Missouri Pacific. The first road is a system operating through thickly populated territory, connecting very important terminals, and enjoying diverse traffic. The second road operates in a sparsely settled area, and, while it

serves many of the more important localities in its territory, it is inconceivable that it should be called upon under present conditions to handle the same amount of traffic per mile of road as the former road handles. What does this mean to the analyst? It means that very few of the ratios of operation or capitalization can be compared for the two roads. In so important a matter as capitalization, one finds that the New York Central has approximately \$149,000 of capitalization outstanding per mile of road operated, whereas the Missouri Pacific is capitalized at about \$78,000 per mile. This disparity loses significance, however, when it is realized that the New York Central carries more than twice as much freight per mile of road as the Missouri Pacific, and, as for the less significant passenger traffic, over ten times as much.¹ In view of a much heavier traffic density, the former road can support a heavier capitalization. Furthermore, some types of freight pay a higher rate than others.

A large portion of the freight carried by the New York, New Haven & Hartford railroad is known as high classification freight and pays a much higher rate per ton mile than do such items as coal, ore, and other bulky commodities. Each ton of freight carried on the New York, New Haven & Hartford, in 1939, yielded on the average a gross revenue of 1.76 cents, while the Norfolk & Western, which operates in the Pocahontas coal district, received only .66 cents for each ton mile carried. However, high rate traffic may entail heavier handling costs and travel short distances. Among the relatively few prosperous roads are some which have a very high proportion of bituminous coal traffic, such as the Chesapeake & Ohio and the Norfolk & Western.

These simple illustrations are given to show that to be of the greatest value comparisons should involve roads that are similarly situated in respect to character of traffic, territory served, and length of road operated. Otherwise serious errors in judgment are likely.

With this word of caution, we may turn to certain matters that have a direct bearing on the status of a road, but which are somewhat beyond the control of the management. Thereafter, consideration will be given to a number of ratios or units

¹ Capitalization here includes capitalized rentals, in order to give effect to the leased mileage, which is, of course, included in the item "miles of road operated," used in computing traffic density. Data from *Moody's Manual of Investments: Railroad Securities* (New York: Moody's Investors Service, 1939), pp. 416, 419, 536, 540.

of measurement by which the operating results of roads may be compared or analyzed.

Outside factors: nature of terrain. The location of a road, the curves and especially the grades it encounters, the character of the freight originating in the territory, and the potential volume of business are factors that may have involved managerial problems when the road was originally constructed. After a line is already built and is operating, however, such matters are largely settled, unless capital expenditures are subsequently undertaken to eliminate grades, straighten curves, or otherwise improve the road's physical layout. The territory can also change through subsequent population growth or industrial development.

The grades encountered are important, because they affect operating costs and limit the average trainload that can be hauled over any division or branch. Let us suppose that two roads are substantially similar in all respects, except that one encounters at certain points on its line grades as steep as 2 per cent, while the other road runs over practically level country.² Which of these two roads will be able to show the better operating costs? Undoubtedly the latter, for each 1 per cent increase in grade may be said to cut the hauling capacity of an engine in half. For this reason, the New York Central lines, with practically a level route from New York to Chicago, have a decided advantage over the Pennsylvania and the Baltimore & Ohio roads, which cross the Allegheny Mountains. It is true that engineering skill is often employed in eliminating grades, but this adds to the road's capital investment and hence increases fixed charges. A road that naturally enjoys level territory has a permanent advantage over one that encounters grades, even if the latter is able subsequently to eliminate these grades. The matter of curvature has about the same effect on railroad operation as grades. Sharp curves cut down the average trainload and add to the cost of operation, although they present a somewhat less serious problem than do heavy grades.

Character of traffic. Another matter that is partly beyond the control of the management of a road is the type of traffic which it is offered. Here, again, the management of a particular road can, it is true, assist in the building up of industries along its lines and thus diversify to some extent the character

² A grade of 1 per cent may be expressed as a grade where there is a rise of 52 feet per mile, or 1 foot per 100 feet.

of its traffic, yet the kinds of freight offered will depend a great deal on the particular economic conditions within the area which the road serves.

Roads like the Chesapeake & Ohio and the Norfolk & Western are known as the soft-coal carriers, in that they run through territory in which the mining of bituminous coal is the leading industry. The bulk of their traffic, therefore, consists of bituminous coal. Other roads, like the Reading, the Delaware, Lackawanna & Western, the Lehigh Valley, and the Delaware & Hudson, are known as the hard-coal carriers. The Northwest roads, such as the Chicago, Milwaukee, St. Paul & Pacific, and the Northern Pacific are still often spoken of as the grain roads, although their freight statistics show that no longer does an abnormally large part of their traffic consist of products of agriculture.

The Interstate Commerce Commission requires that each road keep records showing the percentage of the total freight traffic carried under each of the following groups:

1. Products of Agriculture.
2. Products of Animals.
3. Products of Mines.
4. Products of Forests.
5. Manufactures and Miscellaneous.
6. Merchandise (less-than-carload lots).

The following table, which is given for illustrative purposes, contains a three-year analysis of the distribution of traffic of the Delaware & Hudson and the New York, New Haven & Hartford Railroads:

ANALYSIS OF TRAFFIC OF DELAWARE & HUDSON, AND NEW YORK, NEW HAVEN & HARTFORD RAILROADS: 1929, 1933, AND 1939

(By Per Cents)

Products	DELAWARE & HUDSON			NEW YORK, NEW HAVEN & HARTFORD		
	1929	1933	1939	1929	1933	1939
Agriculture.....	4.0	4.3	5.4	9.1	12.2	11.6
Animals.....	.8	1.6	1.5	2.8	4.5	3.4
Mines.....	68.2	71.1	66.8	33.5	36.1	30.9
Forests.....	3.9	3.0	2.6	4.2	2.6	3.4
Manufactures.....	20.8	18.0	22.1	42.4	37.7	43.8
Merchandise....	2.3	2.0	1.6	8.0	6.9	6.9
	100.0	100.0	100.0	100.0	100.0	100.0

It is interesting to note in detail the difference in the traffic carried by these two roads. As already suggested, the Delaware & Hudson is commonly known as one of the coal roads, and, in fact, about 70 per cent of the entire traffic of this road is made up of "products of mines," of which approximately four fifths is anthracite coal. The New York, New Haven & Hartford, on the other hand, enjoys diversity in its freight. Manufactures and merchandise make up the bulk of this road's traffic, and here are included a wide range of commodities, generally known as high classification freight. These statistics show an unfortunate tendency of the last two groups to decrease in relative importance during the depression, suggesting possible losses to motor trucks, which are especially effective in this short-haul territory with well-developed highways. With recovery in 1939 this tendency disappeared. From the standpoint of traffic diversification, the New York, New Haven & Hartford is better situated than the Delaware & Hudson.

Dangers of concentrated traffic. It is of course desirable that a road should have a fairly diversified traffic and that the major sources of traffic be permanent. To illustrate the disadvantages of concentrated traffic to a road, one has but to consider the effect of the coal strike in 1925 on the revenues of the Delaware & Hudson. Revenues derived from coal traffic in 1925 were \$17,772,850, as contrasted with coal revenues of \$22,308,428 in 1924. Total operating revenues declined from \$45,012,988, in 1924, to \$41,769,491, in 1925; whereas net income available for dividends declined from \$5,817,376 to \$4,907,708. This decline in gross operating revenues and net income is all the more significant when it is realized that railroad operations in other parts of the country were particularly successful in 1925. As a matter of fact, combined net operating income for all Class I railroads in the country reached a higher figure in 1925 than in any other year since 1915, amounting to \$1,121,077,000, as contrasted with \$973,837,000 in 1924. In more recent years, this railroad has suffered in common with the other hard coal roads from the decline of the anthracite industry.

The case of the old Pere Marquette is another example frequently cited to show the dangers that may result from poorly diversified traffic. This road was originally built to serve the rich timber lands of Michigan. For a time all went well; but, as the lumber was cut off, traffic dwindled and earnings declined. The inevitable result was receivership and reorganization. In

fact, two reorganizations were necessary before the road finally emerged as a going concern. The growth of other industries in the territory that the Pere Marquette serves has, during recent years, improved its situation substantially. More recently, the road's traffic has shown a more satisfactory diversity, products of forests constituting less than four per cent of total revenue tonnage carried in 1939.³

The business of a railroad is different from that of a factory in that its plant and equipment are definitely committed to the one business of furnishing transportation services. If the road's business centers largely on the transportation of only one article, and if the demand for or source of supply of that article falls off, the road is helpless. A few roads with high traffic concentration have fared particularly well during the depression. The Chesapeake & Ohio and the Norfolk & Western were notable in this respect. Some statisticians are inclined to point out the vulnerability of such roads, however, on this very ground. On the other hand, roads such as the Pittsburgh & Lake Erie, heavily interested in coal, ore, and iron and steel tonnage, and the Pere Marquette, confined to a territory greatly affected by automobile production, suffered much more than average in the depression years following 1929. Traffic diversification is regarded as protection against long-term failure of business rather than against the shorter-run ills of the business cycle.

Diversified traffic. Roads that lack diversified traffic are affected in other respects. The Lehigh Valley, the Delaware & Hudson, and other coal-carrying lines are hampered by the fact that much of their traffic moves only one way. All these roads are required to have special equipment for hauling coal, yet the coal moves one-way only. On the other hand, empty cars have to be hauled back to the mines, and this hauling involves a cost with no corresponding return. It might also be added that roads with highly concentrated traffic suffer from

³ CLASSIFICATION OF REVENUE FREIGHT TONNAGE
OF PERE MARQUETTE: 1939

	<i>Per Cent</i>
Products of Agriculture.. .. .	10.07
Products of Animals.. .. .	1.71
Products of Mines.. .. .	46.14
Products of Forests.. .. .	3.95
Manufactures and Miscellaneous.. .. .	36.65
Merchandise.. .. .	1.48
	100.00

seasonal depressions and periods of peak movements. In order to meet the heavy movement of traffic at certain times of the year, it is necessary to have facilities that lie idle during other months. Diversified traffic results in a more even distribution of business throughout the year.

Traffic density. The next matter to consider in analyzing railroad securities is that of *traffic density*. A road's traffic is customarily divided into two major groups—freight and passenger. The *freight density* of a road may be found by dividing the number of tons of freight carried one mile by the number of miles of road operated. *Passenger density* is similarly obtained by dividing the number of passengers carried one mile by the number of miles of road operated. By thus comparing the amount of freight or the number of passengers carried, in terms of the ton-mile or the passenger-mile unit, with the number of miles of road operated, we have a ratio that indicates the extent to which the facilities of one road, as compared with those of another road, are used. In this connection let us consider the freight and passenger density of three roads: the Pennsylvania, the Northern Pacific, and the Chicago, Milwaukee, St. Paul & Pacific.⁴

TRAFFIC DENSITY OF SELECTED ROADS

	AVERAGE: 1930-1939		1939	
	<i>Freight</i>	<i>Passenger</i>	<i>Freight</i>	<i>Passenger</i>
Pennsylvania.....	3,131,358	341,605	3,509,093	464,964
Northern Pacific.....	692,315	34,087	836,400	33,890
Chicago, Milwaukee, St. Paul & Pacific.....	775,131	46,306	842,586	40,790

During the ten-year period 1930 to 1939, the Pennsylvania, operating in the densely populated trunk line territory, carried on the average more than four times as much freight per mile of road operated as did either of the two Northwestern carriers. Passenger traffic density during this period was ten and seven times heavier for the former than for the latter two, respectively. A comparison of these averages with those for the year 1939 shows the gain in the traffic density of the Pennsylvania as smaller than that of the Northern Pacific but greater than that of the "Milwaukee."

Traffic density depends in a measure on the territory that a railroad serves, its terminals, and its connections with other

⁴Compiled from *Moody's Manual of Investments: Railroad Securities* (New York: Moody's Investors Service, 1940).

railroads. Roads that traverse densely populated areas or that connect important cities will have a greater traffic density than roads that serve thinly populated areas. It is also important that a road be so situated as to enable it to serve one or more important terminal cities. A road which connects Chicago with the Gulf, with Mississippi or Missouri river points, or with Pacific or Atlantic cities, has an excellent opportunity to make arrangements with other roads for reshipment of traffic over long distances. A road that merely serves an outlying area and acts largely as a feeder for other lines is at a disadvantage in this respect. Such a road is restricted to traffic that originates or is consumed in its own area. The business of handling through shipments is possible only for roads that connect important cities. If the student will refer to a railroad map and note the areas and the important cities served by the four proposed trunk line systems, the New York Central, the Pennsylvania, the Baltimore & Ohio, and the Chesapeake & Ohio-Nickel Plate, he will note that each of these systems is advantageously located in this respect.⁵ In addition, some of the roads included in the various systems created by stock ownership, such as the Erie and the Pere Marquette, are substantially strengthened by the outlets and additional sources of traffic thereby afforded them.

The roads that offer the greatest opportunities for speculative profits at the present time are those serving rapidly growing areas. Some Southwestern roads showed large increases in traffic and revenues during the years immediately prior to 1930, partly on account of the growth that took place in the territories served. Future increases in density and revenues may reasonably be expected from the roads in that section. The New York Central, the Pennsylvania, and the New York, New Haven & Hartford serve areas where expansion in traffic is more uncertain and the opportunities for speculative profits are more limited. On the other hand, roads that at present have a low traffic density and are located in developing territory are in a position to take on additional business with no substantial increase in plant and with a less-than-proportional increase in operating expenses.

Revenues per ton mile of traffic carried. In connection with traffic density, it is also important that one consider the nature of traffic handled. The mere fact that one road has a traffic

⁵ Map of trunk lines of the principal railroads appears opposite p. 174, blue section, *Poor's Manual of Investments, Railroads*, 1940.

density which is two times that of another road is not wholly significant, since the former road may have a relatively large amount of low-grade freight. The character of business handled determines the relative amount of revenue derived from the road's traffic. For example, the freight density of the Lehigh Valley in 1939 was 3,026,554; that is, over 3,000,000 ton miles of freight were hauled per mile of road. The average rate per ton mile, however, was only 1.04 cents. The New York, New Haven & Hartford had a freight density in 1939 of 1,428,936, a figure slightly less than one half that of the Lehigh Valley, but it averaged 1.76 cents revenue per ton mile, or about two thirds more than that of the former road. For this reason the New York, New Haven & Hartford was able to show in that year gross freight revenue per mile of road of \$25,206, as compared with \$31,506 for the Lehigh Valley. In other words, with a freight density of only 47 per cent of that of the Lehigh, the New York, New Haven & Hartford was able to derive from its freight business 80 per cent as much revenue per mile of road as did the former road. The following table presents an interesting comparison of the ton-mile revenues of selected roads in the year 1939:⁶

CHARACTER OF TRAFFIC AND TON-MILE REVENUES OF
SELECTED ROADS: 1939

<i>Freight Classification</i>	<i>Delaware & Hudson</i>	<i>N. Y. Central</i>	<i>Atchison</i>	<i>N. Y., N. H. & H.</i>	<i>Norfolk & Western</i>
Products of Agriculture	5.4%	7.2%	25.7%	21.5%	2.2%
Products of Animals	1.5	1.9	4.0	2.2	.3
Products of Mines	66.8	59.7	28.9	35.2	85.3
Products of Forests	2.6	2.1	4.8	3.8	2.0
Manufactures and Misc.	23.7	29.1	36.6	37.3	10.2
Average Revenue per Ton-Mile . . . . .	.856¢	.923¢	1.090¢	1.764¢	.661¢

Note the extent to which revenues vary with the class of freight handled. The Norfolk & Western has the lowest rate of revenue, the highest percentage of freight represented by products of mines, and the lowest under the manufactures and miscellaneous group. The New York, New Haven & Hartford has the highest rate of revenue, the lowest percentage classed as "products of mines," and the highest classed as "manufactures and miscellaneous."

⁶ Compiled from *Poor's Manual of Investments, Railroads*, 1940.

Passenger versus freight traffic. If one looks at the composite operating results of all Class I roads in this country, he will note that freight business contributes more than any other single item to total revenues. The freight end of the railroad business is considerably more important than the passenger end, as shown by the figures from the combined income account of all Class I roads, given in the following table:⁷

COMPARISON OF TOTAL REVENUES AND FREIGHT AND PASSENGER REVENUES OF CLASS I ROADS IN THE UNITED STATES

	—AMOUNTS IN MILLIONS—				—PERCENTAGES—			
	1920	1930	1935	1938	1920	1930	1935	1938
Total Revenues.	\$6,178	\$5,281	\$3,452	\$3,565	100%	100%	100%	100%
Freight.....	4,317	4,076	2,786	2,852	70	77	81	80
Passenger.....	1,287	728	357	406	21	14	10	11

On the other hand, there are certain roads, such as the New York, New Haven & Hartford, and the Long Island, where passenger revenues are very substantial. These passengers are largely persons who commute daily to work in New York City. In the case of the Long Island Railroad, almost all of whose stock is owned by the Pennsylvania Railroad, passenger revenues consistently amount to more than twice freight revenues. The passenger density of this road is the highest of any steam railroad in the country.⁸ These roads, however, are the exception, not the rule. Nevertheless, railroads operate under conditions of increasing returns, and a falling off in passenger revenues should not be disregarded, even if only a small part of the road's total revenue is derived from its passenger business.

From 1920 to 1929 there was a country-wide tendency for passenger business to decline, while freight revenues, on the whole, increased. Significantly, passenger traffic has shown much less improvement than that of freight since 1933. These movements are indicated in the data appearing on page 469, and in Figure 18, on page 468. Since mileage operated has changed but slightly during the period shown there, traffic density figures would parallel the traffic figures.

The decline in the number of passengers carried and in passenger density may be accounted for by the increasing use of

⁷ Compiled from *Statistics of Railways in the United States*, Interstate Commerce Commission.

⁸ *Moody's Manual of Investments: Railroad Securities* (New York: Moody's Investors Service, 1939), p. 760.

automobiles and buses. Truck transportation has undoubtedly taken away some freight traffic from the railroads, especially in congested areas where short hauls predominate; but where the average haul is long, transportation by rail has generally proved more economical than transportation by truck. In view of the preceding tendencies, it is essential to study carefully the manner in which individual roads have fared in respect to passenger and freight traffic increases or decreases and to consider their future prospects under changed conditions.

During the recent past, the trucking industry was able not only to benefit from the lower prices that determined its costs but also to reduce wages in a manner that was impossible for the railroads, which were manned by skilled workers, who were strongly unionized. Both motor trucks and automobiles were rapidly increasing during the period for which figures are shown above. Today they have filled their logical niche in a transportation field already fairly full. Any future expansion will depend upon increased efficiency and cost reductions, which may be counterbalanced by similar steps on the part of the railroads. Lighter-weight equipment may make possible lower per ton-mile and per passenger-mile costs, such as were in process prior to 1929, but which are often overlooked. However, the shorter service life and more frequent scrapping of old equipment by the user of motor trucks means a flexibility in meeting obsolescence that will require the most alert and aggressive action if it is to be met successfully by railroad management.

Length of mileage. The length of mileage operated by a road is another general factor to be considered. As a rule, roads with long mileage enjoy diverse traffic and long hauls. Long hauls are often more profitable to a road than short hauls, because handling and terminal costs are proportionately less. Regardless of the length of haul, only one set of terminal costs is necessary. For these reasons it rarely happens that a road or system operating less than 1,000 miles is profitable. The exceptions are those roads that operate through very densely populated areas or that connect important terminals.

The presence of extra main line trackage likewise indicates a better utilization of the system. It has been estimated by railroad engineers that the carrying capacity of a railroad is increased from $2\frac{1}{2}$ to 5 times by double tracking. The presence of double tracks increases the rate of speed at which trains

may be run, eliminates the delays frequently incurred where trains meet at turnouts, and makes possible much greater efficiency in train operation.

Specific tests of operating efficiency; analysis of financial statements. Analysis of the second group of factors—those over which the management has a direct control—requires a study of the financial statements issued by the separate roads. In contrast with the wide differences found in the accounting practices of industrial and, to some extent, of public utility corporations, one finds a pleasing uniformity in railroad accounts. All roads engaged in interstate commerce are required to keep their uniform accounts as prescribed by the Interstate Commerce Commission. Furthermore, the completeness with which information is given enables a much more valuable comparison to be made of various roads than would otherwise be possible.

The income account. The basic form of income account now prescribed by the commission follows:

STANDARD FORM OF INCOME ACCOUNT FOR RAILROADS

Section I.—Operating Revenues.

Freight revenues.

Passenger revenues.

Other transportation revenue (including mail, express, etc.).

Nontransportation revenue.

Total operating revenue.

Section II.—Operating Expenses.

Maintenance of way and structures.

Maintenance of equipment.

Traffic expenses.

Transportation expenses.

General and miscellaneous expenses.

Transportation for investment (credit).

Less total operating expenses.

Section III.—Net Operating Revenues.

Less railway tax accruals.

Section IV.—Operating Income.

Add:

Rent from locomotives.

Hire of freight cars (credit).

Rent from passenger train cars.

Rent from joint facilities.

Other income.

Section V.—Total Operating Income.

Deduct:

- Hire of freight cars (debit).
- Rent for locomotives.
- Rent for passenger cars.
- Rent for joint facilities.
- Rent for other equipment.

Section VI.—Net Railway Operating Income.

Add nonoperating income:

- Dividends received.
- Income from funded securities.
- Income from unfunded securities and accounts.
- Rents received.
- Miscellaneous income.

Section VII.—Gross Income.

Deduct:

- Interest on funded debt.
- Interest on unfunded debt.
- Rents for leased roads.
- Miscellaneous rents.
- Miscellaneous charges.

Section VIII.—Net Income.

Deduct:

- Dividends paid.
- Special appropriations.
- Profit or loss for the year.

The income account of the Pennsylvania Railroad Company for the year ended December 31, 1939, is given below for illustrative purposes.⁹ It will be noted that this account follows very closely the standard form shown on pages 493 and 494.

INCOME STATEMENT OF THE PENNSYLVANIA RAILROAD
COMPANY FOR THE YEAR ENDED DECEMBER 31, 1939

(10,270.01 Miles Operated)

<i>Operating Income</i>	
Railway Operating Revenues.....	\$430,930,777.90
Railway Operating Expenses.....	306,900,834.75
Net Revenue from Railway Operations.....	\$124,029,943.15
Railway Tax Accruals.....	40,095,846.60
Railway Operating Income.....	\$ 83,934,096.55
Hire of Equipment—Debit Balance.....	4,976,914.97
Joint Facility Rents—Debit Balance.....	1,652,853.18
Net Railway Operating Income.....	\$ 77,304,328.40

⁹ Taken from the *Ninety-third Annual Report of The Pennsylvania Railroad Company* for the year ended December 31, 1939, p. 7.

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<i>Nonoperating Income</i>	
Income from Lease of Road	\$ 375,480.17
Miscellaneous Rent Income	2,312,259.08
Dividend Income	23,516,383.37
Income from Funded Securities	4,786,559.82
Income from Unfunded Securities and Accounts	283,695.75
Income from Sinking and Other Reserve Funds	5,286,003.27
Miscellaneous	303,843.39
Total Nonoperating Income	\$ 86,864,229.85
Gross Income	\$114,168,558.25

<i>Deductions from Gross Income</i>	
Rent for Leased Roads	\$ 50,967,578.32
Miscellaneous Rents	897,741.09
Miscellaneous Tax Accruals	178,456.56
Interest on Funded Debt	28,491,156.57
Interest on Unfunded Debt	187,015.58
Miscellaneous	1,404,085.27
Total Deductions from Gross Income	\$ 82,136,033.39
Net Income	\$ 32,032,524.86

<i>Disposition of Net Income</i>	
Sinking and Other Reserve Funds	\$ 6,103,359.39
Dividend (2%) paid December 18, 1939	13,187,754.00
Construction Expenditures and Advances—Leased Lines and Affiliated Companies borne by the Pennsylvania Railroad Company	2,751,479.31
Total	\$ 22,022,592.70
Balance Transferred to Credit of Profit and Loss	\$ 10,009,932.16

<i>Profit and Loss Statement</i>	
Amount to Credit of Profit and Loss, December 31, 1938	\$161,593,663.39
Add:	
Balance of Income for the Year	10,009,932.16
	\$171,603,595.55
Deduct:	
Retirement of Property	5,120,345.21
Sundry Net Debits	1,059,487.21
Amount to Credit of Profit and Loss, December 31, 1939	\$ 165,423,763.13

The various sections of this report may now be considered in greater detail. Section I in the original annual report showed the various sources of gross revenues in detail:

	<i>Amount</i>	<i>Per Cent</i>
Freight	\$320,960,493	74.5
Passenger	71,106,822	16.5
Mail	12,073,877	2.8
Express	6,140,692	1.4
All Other Transportation	6,829,395	1.6
Incidental	13,326,753	3.1
Joint Facility	492,746	.1
Total	\$430,930,778	100.0

The items require no elaborate explanation. They include the total revenues of the road as derived from operating trains over its owned and its leased mileage. Nonoperating income is excluded from this section. Obviously the greater part of the operating revenues of a road will be derived from its freight and passenger business. The average figures for the United States as a whole show that approximately 80 per cent of all operating revenues are derived from handling freight, about 11 per cent from passengers, and the balance from mail, express, and incidental transportation services.¹⁰

Operating revenues per mile of road. An excellent test, very similar to that for traffic density, may be made by dividing operating revenues by miles of road operated. This study may be further refined for comparative purposes if desired, by ascertaining freight revenues or passenger revenues per mile of road. "Revenues per mile of road operated" is a better measure of the amount of traffic carried by a road than is either freight density or passenger density as previously defined (see page 488), for it gives weight not only to the amount of traffic per mile of road, but to the dollar value of this traffic as well.

It is interesting to note the extent to which revenues per mile of road vary in different sections of the country. The following table shows the combined results for selected roads operating in different geographical divisions of the country for the year 1937:¹¹

MILES OF ROAD OPERATED, OPERATING REVENUES, REVENUES PER MILE OF ROAD, AND OPERATING RATIOS: 1937

<i>Region</i>	<i>Miles of Road Operated</i>	<i>Operating Revenues (Thousands of Dollars)</i>	<i>Operating Revenues per Mile of Road</i>	<i>Operating Ratios</i>
New England.....	6,977	\$163,414	\$23,400	76.9%
Great Lakes.....	26,478	779,938	29,500	76.5
Central Eastern.....	24,758	869,322	35,100	73.6
Pocahontas.....	6,039	250,993	41,600	56.2
Southern.....	38,679	516,591	13,400	75.6
Northwestern.....	45,959	476,250	10,400	76.5
Central Western.....	56,860	778,772	13,700	78.2
Southwestern.....	29,418	330,788	11,200	76.0
All Regions... ..	235,168	\$4,166,068	\$17,700	74.9%

One of the difficulties encountered in analyzing railroad securities is that no one ratio taken by itself is significant. This is

¹⁰ See table on p. 491.

¹¹ *Statistics of Railways in the United States, 1937.*

true of revenues per mile of road. Until we know the operating ratio of the road and its capitalization per mile, it is impossible to derive any very intelligent deductions from per mile revenue statistics. If one road requires 80 per cent of its operating revenues to meet operating expenses, while another requires only 65 per cent, it is at once obvious that each dollar of operating revenue received is more valuable to the second road than to the first. Similarly, it is important to know the per mile capitalization of the two roads. If high per mile revenues are accompanied by a high per mile capitalization, the advantages of heavy traffic may be nullified.¹² It is, in fact, impossible to center one's attention on any one statistical measurement in analyzing railroad securities. It is necessary to consider the whole range of data available and then to form as reasonable and intelligent a judgment as possible.

Operating and maintenance ratios. The operating ratio of a railroad is found by dividing its *total operating expenses* by its *total operating revenues*.¹³ The resulting figure indicates the percentage of gross revenues required in the operation of the business. While it is true that the operating ratio of a road gives a general picture of the road's efficiency, such information is not in itself complete. The truth of this statement becomes apparent when one examines more closely the significance of the various items contained under Section II of the Income Account. Let us, therefore, analyze in some detail each of the subdivisions found under the heading "Operating Expenses."

The item "Maintenance of way and structures" includes all items of expense incurred in the repairing and renewing of the railroad's track, roadbed, bridges, tunnels, stations, docks and buildings, interlocking signal devices, power plants, and transmission lines, as well as write-offs for depreciation on these items. In other words, the expenses segregated under this item cover all outlays incurred in maintaining the so-called *way and structures* of the road in a proper state of repair, as well as such depreciation in values as occurs thereon through ordinary wear and tear, age and obsolescence. Any "retirement" expense—that is, loss arising from the retirement of property not previously cared for by the depreciation allowances—is also included. Railroad accounting differs from accounting in other

¹² For further consideration of capitalization per mile of road and its effect on railroad securities, see p. 510.

¹³ For data on average ratios for 1912-1939, see p. 473.

fields in that it combines repairs, depreciation, and retirements under the title of maintenance, instead of identifying it with repairs alone, as is usually the case. Supporting schedules in the railroad's annual report permit the study of these three subdivisions in detail.

"Maintenance of equipment" includes items of expense incurred in repairing and renewing the rolling stock of the road—that is, its cars, locomotives, car shops, shop machinery, and the like. It also includes write-offs for depreciation on these assets. In this way the assets of the road are divided into non-movable (way and structures) and movable (rolling stock and assets associated therewith).

"Traffic expenses" includes all costs incurred in procuring business for the railroad. They may be compared with the selling expenses of an industrial plant. The traffic manager of a railroad is really its sales manager, since it is he who is responsible for getting business. Included under traffic expenses, therefore, we find expenses and salaries of traffic managers, freight solicitors, advertising, industrial, and immigration bureaus, and the like.

"Transportation expenses," sometimes called "Transportation rail-line," includes all expenses incurred in moving trains. To this account are charged the wages of station employees, flagmen, yardmen, clerks, watchmen, engineers, and trainmen; the cost of dispatching trains, fuel and supplies for locomotives; expenses for water supply; the operation of joint yards and terminals; and telegraph and station service expenses. In short, all costs of train movement are included in this subdivision of the Income Account.

Under the heading "General expenses" are grouped the salaries of the general officers of the road and their office expenses, including: salaries of clerks and attendants; expenses for office supplies, stationery, and legal work; pensions to old employees; and other so-called indirect expenses. "Miscellaneous expenses" includes expenses incurred in the operation of dining cars and restaurants, grain elevators, stockyards and in the furnishing of other special services that are collateral to the main business of the road.

"Transportation for investment (credit)" is set up to absorb all expenses connected with the movement of company materials, transportation of company officials using passes, and other costs

involved in the transportation of materials or persons in connection with construction. This account is then deducted from total operating expenses and added to the asset being constructed, in order that total railway operating expenses may represent only the movement of revenue traffic.

The first conclusion generally drawn from a comparison of the operating ratios of two roads is that the road with the lower ratio is the one more efficiently operated, and should therefore be considered the better medium of investment, other things being equal. This assumption is not entirely true, however, because certain of the various items making up operating expenses have a different effect on the investment status of the road's securities than do other expense items. Let us consider in this connection the amount spent for maintenance, which is discretionary within a certain range. The average amount spent by all roads in the United States for maintenance is about 33 per cent of operating revenues. If, however, a given road spends more on maintenance items than does another road, it may mean that its physical assets are being kept in a better state of repair. In fact, it is entirely possible for a road to go so far in maintenance expenditure that in substance it actually increases the capital value of its assets. Yet, so long as such expenditures are charged to income and not to asset accounts, the result is an increase in operating ratios. One may naturally ask the question: "Does this policy truly register inefficiency?" On the other hand, another road, by neglecting its way and structures and equipment, may show much lower operating expenses and a lower operating ratio. Again, it may be asked: "Is the second road more efficiently operated than the first?" A mere examination of the operating ratio of a railroad fails to give a complete picture of its operating efficiency.

It is possible to illustrate this situation by means of two hypothetical examples. Let us consider that Roads A and B are similar in respect to territory served and the nature of traffic density, and operate approximately the same amount of gross mileage. The percentages of total operating revenue consumed by the various classes of operating expenses for both roads are as follows:¹⁴

¹⁴The ratios given here for Road A approximate the average for all roads of the United States for 1929. See *Statistical Abstract of the United States*, 1930, p. 410, for original data

<i>Item</i>	<i>A</i>	<i>B</i>
Per Cent of Operating Revenues Consumed by:		
Maintenance of Way and Structures.....	14	11
Maintenance of Equipment.....	19	13
Transportation Rail and Water.....	33	38
Traffic and General.....	6	7
Total Operating Expenses.....	72	69

In the above illustration, Road *A*'s operating ratio is higher than that of Road *B*, yet a closer examination shows that Road *A* is putting a much larger percentage of its operating revenues back into its properties than is Road *B*, and is actually conducting its real business, *that of furnishing transportation*, in a somewhat more efficient manner than Road *B*. This fact is indicated by its *transportation ratio*, as the ratio of transportation expense to operating revenues is called. Thus, if one seeks an indication of the operating efficiency of one road as compared with another, he should go further than a mere comparison of operating ratios. A far better index of the operating efficiency of a road is the ratio of "General, Transportation, and Traffic expenses" to "Operating Revenues." This ratio is the most important single item available for measuring both the efficiency with which a road is operated and its profit-making possibilities. In some respects this item actually reflects all other matters of efficiency, since everything accomplished in the way of economical operation sooner or later has its effect in raising or lowering the so-called "transportation ratio" of the road.

Again, it is necessary to add a word of caution. In comparing the transportation ratios of various roads, one must consider the relationship that exists between classes of freight and gross revenues. The fact that certain kinds of freight are more remunerative than others cannot be overlooked in comparing transportation ratios, although it by no means follows that roads with a predominance of low-paying freight always have high operating ratios. The added services that must sometimes be rendered in connection with high-class freight traffic may offset the higher rate received thereon. Viewed in another way, low-grade freight, carried in large trainloads, with no additional service, may prove as profitable in terms of net revenues as the higher-class freight. Again, the most valid comparisons are between roads that are similarly situated and that move essentially the same kinds of traffic.

Analysis of maintenance expenses: equipment. Some indication of the liberality of a road in respect to its maintenance

of equipment may be had by dividing maintenance of equipment expenses by gross revenues. This will show the percentage of gross revenues devoted to the maintaining of equipment, but it is not the most accurate test in respect to this item. It is possible to go somewhat further and reduce maintenance of equipment expenses to a "per mile of road" basis. Even this basis of comparison is open to the fundamental objection that no account is taken of the number of engines which one road has as compared with another. If Road *A* has twice as many engines per 1,000 miles of road as Road *B*, the first road obviously should spend more to maintain equipment than the second. It is more accurate, therefore, to reduce "maintenance of equipment" to a "train mile" basis. The results of such a comparison are far more satisfactory than the per mile of road method, even though it fails to take account of the various types of equipment which a road operates.

The most accurate analysis of equipment expenses requires that the amount of maintenance charged to each type of equipment—locomotives, passenger cars, and freight cars—be divided by the number of locomotive miles or car miles registered by each class of equipment. While this gives very accurate and comparable data on the maintenance policies of a given road in respect to equipment, the average investor is unlikely to make these computations. In some instances the annual reports of the road furnish these ratios. In other cases, it is necessary to consult the reports on file with the Interstate Commerce Commission in Washington. Therefore the investor, for practical purposes, is likely to rely largely on the ratio of maintenance of equipment to gross revenues, or maintenance of equipment per train mile. For illustrative purposes these ratios are shown for four of the leading Northwestern roads for the year 1939:¹⁵

COMPARISON OF MAINTENANCE OF EQUIPMENT EXPENDITURES
OF FOUR NORTHWESTERN CARRIERS: 1939

	Gross Revenues (Thousands of Dollars)	Mainte- nance of Equipment (Thousands of Dollars)	% Mainte- nance of Equipment to Gross Revenues	Main- tenance of Equip- ment Per Train Mile
Chicago, Mil., St. Paul & Pacific	106,875	19,817	18.5%	\$.775
Chicago & Northwestern.....	87,250	17,536	20.1	.769
Great Northern.....	91,783	15,431	16.8	.902
Northern Pacific.....	63,882	12,722	19.9	.913

¹⁵ Data from *Moody's Manual of Investments, Railroad Securities*, 1940.

A further test of the actual physical equipment of a road, quite independent of the amount expended on its maintenance, is found in the percentage of bad order cars and bad order locomotives to the total "on line." A road is generally considered as standard that has not more than 6 per cent of its cars and not more than 15 per cent of its locomotives in bad order. Thus a check is provided on the current maintenance charges. When maintenance is neglected, the percentage of unserviceable equipment will rise in an unhealthy manner. Changes in the percentage are often more significant than the actual percentage itself. When business is greatly depressed, the unserviceable equipment may not be used, and the service may not suffer, but an accumulation of deferred maintenance is revealed which will burden the expenses in subsequent years. The following table shows the average condition and significant tendencies:

CONDITION OF RAILROAD EQUIPMENT IN THE UNITED STATES:
1920-1938*

PERCENTAGES OF UNSERVICEABLE FREIGHT EQUIPMENT

	1920	1925	1930	1931	1932	1933	1934	1935	1936	1937	1938
Locomotives....	24.5	17.8	17.5	20.7	26.6	32.7	33.9	33.8	30.5	25.5	29.4
Cars....	7.0	7.7	6.2	7.8	10.6	14.1	14.6	14.0	12.8	10.1	11.9

* Compiled from *Statistics of Railways of Class I*, Bureau of Railway Economics, and *Freight Service Operating Statistics of Class I Steam Railways in the United States*, Bureau of Statistics, Interstate Commerce Commission.

Analysis of maintenance expenses: way and structures. The most obvious ratio for comparing the maintenance of way and structure expenses of one road with another is the percentage of operating revenues used for that expense by each road. Another significant ratio for comparative purposes may be obtained if maintenance of way and structure expenses is reduced to a per mile basis by dividing such expenses by the number of miles of road operated. This ratio again must be interpreted in the light of the traffic density of the road. The per mile maintenance expenditures of a road with a freight traffic density of 1,000,000 would naturally be less than that for a road with a density of 3,000,000, for the wear and tear on the latter road would be substantially greater than on the former. For this reason such comparisons are most significant if one first divides the roads to be studied into groups showing approximately the same traffic density, and then ascertains the amounts expended over a period of years for maintenance of way and structure on each road within the group.

In actual practice, a further refinement is applied in comparing maintenance expenditures. It is at once apparent that the amount required to maintain a four-track road is not twice that required to maintain a two-track road of similar length, nor four times that required to maintain a single-track road. A unit known as "miles of track equivalent" is, therefore, computed somewhat as follows. If one assumes that each extra mile of main track can be maintained at a cost of 70 per cent of the cost required for a mile of single track, and that a mile of siding can be maintained at 50 per cent of the cost of maintaining a mile of main track, then, by multiplying the number of miles of extra track by .7, and the miles of siding by .5, and adding these results to the number of miles of main track, he will have an adjusted figure representing the number of track miles in terms of maintenance. This figure is used as the denominator for reducing maintenance of way expenditures to an "equated track-mile" basis.

It is possible, however, to avoid making this adjustment and to give proper account to traffic density by the use of revenue train miles as the denominator. Expenditures for way and structures maintenance per revenue train mile, where they are available, are perhaps the best ratio for a comparison of the policies of various roads. The table below shows the percentage of gross devoted to maintenance of way and structures and the amount of such expenditures per revenue train mile for selected Northwestern roads in 1939:

ANALYSIS OF MAINTENANCE OF WAY EXPENDITURES: 1939

Road	Gross Revenues (Thousands of Dollars)	Maintenance of Way and Structures (Thousands of Dollars)	Maintenance of Way and Structures to Gross	MAINTENANCE OF WAY AND STRUCTURES EXPENSES	
				Per Revenue Train Mile	Per Mile Road*
Chicago, Mil., St. Paul & Pacific	106,875	18,294	17.1%	\$.702	\$1,675
Chicago & Northwestern	87,250	13,861	15.9	.608	1,660
Great Northern	91,783	11,259	12.3	.658	1,395
Northern Pacific	63,882	8,570	13.4	.615	1,275

* Unadjusted.

Other revenues and expenses related to operations. The first item in Section III of the standard income account is designated for purposes of present discussion as "Net Operating

Revenues." This subtotal represents the actual net earnings attributable solely to train operation without any deduction for any taxes, or for the fixed charges, and without reference to so-called nonoperating income or expenses. After tax accruals have been deducted, the "Operating Income" of the road is obtained. To this item are added certain other items, such as revenues received from the rental of equipment, or joint facilities. Hire of freight cars may be a debit or a credit item, depending on the relative amounts received and charged under the *per diem* arrangement by which freight cars are allowed to go off the parent line. A charge of \$1 per day is allowed to the owning road for all box cars and special rates for other equipment as they are used by other lines. On the other hand, the lending road may be using cars of other lines at the same time. Consequently, if a line is abundantly supplied with freight cars, it is likely that this item will be a credit; otherwise its receipts will be less than the amounts charged by other roads, and the item will be a debit.

When these deductions (or additions) have been made, "Net Railway Operating Income" is secured. It is this item that one compares with the valuation of the road's property to determine what rate of return has been earned.

Gross and net income. The addition of nonoperating income, such as dividends received on stocks owned, interest on bonds and notes owned, rents received for leased properties (as distinct from temporary loans of equipment), and miscellaneous income, will give "Gross Income." The source and regularity of this income should be studied. Dividends received may be more or less than the earnings of particular stocks. In this way, Pennsylvania is said to have "hidden earnings" because in recent years the dividends of its investment subsidiary, Pennsylvania Company, have not reflected its full earnings.

The sum of operating and nonoperating income is sometimes referred to as the "Amount Available for Fixed Charges." It is possible to determine at this point the number of times total charges have been earned, but it is not possible to tell by how much margin the charges on any particular issue of bonds have been earned. The exact priorities that the various bond issues enjoy in respect to earnings will depend on the security underlying the bonds. Discussion of this matter will be deferred until analysis of the balance sheet is taken up, at which time the whole matter of the position of the various bond issues of a given road

is again considered. After all fixed charges have been deducted from "Gross Income," the amount available for dividends on the preferred and common stocks of the company, as well as for special reserves, remains. The balance, after these charges have been paid, is carried to the profit and loss account in the balance sheet.

For statistical purposes it is frequently desirable to reduce all of the main subdivisions of the income account to a per mile basis. In this way it is possible to compare different roads in respect to such items as total revenues, operating expenses, fixed charges, and rentals on a per mile basis. Where per mile figures are used in this way to make a comprehensive study of the earnings and expenses of two or more roads, they have a real value. On the other hand, erroneous conclusions may result from an attempt to compare two roads by analyzing only certain items on a per mile basis. As already stated, it would be illogical merely to compare the fixed charges per mile for one road with those for another road without referring to earnings, operating expenses, and other income. Much the same thing could be said in respect to almost any phase of the work of analyzing railroad securities. A proper conclusion requires the weighing of the relevant individual factors.

Train movement or traffic statistics. Another group of statistical data is available from current sources that are not primarily financial, but that deal rather with operating results, such as train and car movements. For instance, the *average trainload* measures efficiency in train movements and also gives some clue as to the condition of equipment. The heavier the trainload, other things being equal, the lower the overhead expenses for the journey. The addition of more cars to a given train does not increase proportionately the cost of hauling. Heavy train movements may be affected by proper routing and dispatching and are also made possible by adequate equipment. There is, however, a limit to the use of such statistics, because of differences in classes of traffic. A road that hauls a substantial amount of bulky and heavy freight, such as coal, should be able to show a large average trainload. On the other hand, a road that is required to handle large amounts of light, but high-classification, freight, *per se*, will have a lighter average trainload, although such traffic may be highly profitable.

The percentage of "loaded" to total car mileage indicates the extent to which "empties" must be hauled. It is highly

important that a road reduce the hauling of empty cars to a minimum. The reduction of empty car movements may be encouraged by proper routing and classification, although the nature of the territory and character of traffic hauled will make it necessary for some roads to haul proportionately more empty cars than others. This is particularly true of roads that require special equipment for one-way freight, such as the coal carriers. Other roads, such as the grain carriers, also suffer from having heavy one-way movements in traffic, with no opportunity to utilize the necessary return movement of empty equipment to the producing area.

Additional statistics are sometimes used in the analysis of railroad operations, but these may be considered as secondary to those already suggested. Besides the freight and passenger density figures, the utilization of facilities may be studied in the number of train miles per mile of road. The train is one unit of operation and certain figures, such as revenues, revenue ton miles, and car miles, may be studied per train mile. The average revenue derived from each ton of revenue freight hauled or from each passenger may also be given without reference to the length of haul. Where such a comparison is made, one would expect high revenues per unit on roads with long hauls, and vice versa. In the following table, which is presented for illustrative purposes, various ratios just discussed for four selected Northwestern roads are given for 1939:¹⁶

OPERATING STATISTICS, SELECTED NORTHWESTERN ROADS: 1939

Road	Average Revenue Trainload Tons	% of Loaded to Total Car Mileage	Freight Train Miles per Mile Road	Passenger Train Miles per Mile Road	Average Revenue per Ton Freight	Average Revenue per Pas- senger
Chicago, Mil., St. Paul & Pacific.	631.73	61.6%	1,340	1,528	\$2.62	\$1.79
Chicago & North- western.....	602.00	63.6	1,189	1,540	1.85	0.66
Great Northern..	919.31	61.4	1,170	950	2.43	4.01
Northern Pacific.	718.00	66.7	1,165	909	3.15	4.08

The balance sheet. The balance sheet has the same general significance in railroad accounting as in industrial or public utility accounting; that is, it represents a cross section of the road's financial condition at a given instant of time. For discussion purposes a balance sheet for the Pennsylvania Railroad

¹⁶ Data from *Standard Corporation Records*, Standard Statistics Co.

Company, as of December 31, 1939, is shown on pages 508-509. The arrangement of accounts in this statement conforms closely to the standard by which all railroad balance sheets are published.

Investments. On the asset side of this statement the first subdivision is headed "Investments." Unlike the balance sheet in other fields, the title covers physical plant as well as security holdings in other corporations. Under this caption are listed: (1) actual physical railroad property, which includes both its own road and equipment, and improvements made on the property of leased roads; (2) sinking funds, representing assets segregated for the retirement of debt; (3) miscellaneous physical property which is not for transportation service, such as land, buildings, or hotels; and (4) various investments in securities which represent the source of most of the railroad's nonoperating income. Such investments may comprise securities of other roads not controlled, of businesses affiliated with the railroad industry, or of companies not associated in any way whatsoever with the business.

Current assets. The next subtitle, "Current assets," requires no elaborate description. The various accounts listed under this heading comprise such items as cash, certain deposits, loans and bills receivable, amounts due from agents and conductors, miscellaneous accounts receivable, inventories, and accruals in the form of interest, dividends, or rents.

Other assets. The remaining assets, consisting of deferred assets and unadjusted debits, are usually of little importance. Some of the funds included in deferred assets resemble "working funds," in that they represent amounts left with officers and employees to meet various items of an expense nature. Sinking funds, however, are investments made to take care of funded debt retirements and appear in the first section of the balance sheet.

Unadjusted debits are miscellaneous items not properly included under the other headings. They include prepaid expenses, discount on bonds and stocks issued, and suspense items that are to be added later to some asset or expense account. In other industries the first two of these items would be classed as deferred items. Examples of each type will be found in the Pennsylvania balance sheet.

Capital items. The first items appearing under liabilities represent the stock and funded debt of the company. These accounts are of special significance to the investor and should be

CONDENSED GENERAL BALANCE SHEET OF THE PENNSYLVANIA
RAILROAD COMPANY: DECEMBER 31, 1939

Assets

Investments:

Investment in Road and Equipment:

Road.....	\$642,431,756	
Equipment.....	606,783,833	
General Expenditures	8,375,720	
	<hr/>	\$1,257,591,30
Improvements on Leased Railway Property*.....		121,638,19
Sinking Funds.....		4,463,63
Miscellaneous Physical Property.....		2,212,13
Investments in Affiliated Companies*.....		634,709,09
Investments in Securities of Pennsylvania Railroad Co.....		910,18
Other Investments*.....		66,284,69
	<hr/>	
Total Investments.....		\$2,087,809,25

Current Assets:

Cash.....	\$ 64,853,164	
Unexpended Proceeds of Bond Issue.....	15,674,558	
Cash for Railroad Retirement Tax.....	3,006,627	
Loans and Bills Receivable.....	7,730	
Traffic and Car Service Balances Receivable.....	6,129,949	
Net Balance Receivable from Agents and Con- ductors	10,424,646	
Miscellaneous Accounts Receivable.....	12,494,088	
Material and Supplies.....	33,383,337	
Interest and Dividends Receivable.....	4,963,132	
Other Current Assets.....	242,980	
	<hr/>	150,680,21

Deferred Assets:

Working Fund Advances.....	\$ 213,581	
Insurance Fund	19,748,880	
Trust Created October 9, 1878.....	89,810,226	
Other Reserve Funds.....	2,980,246	
Other Deferred Assets.....	2,501,140	
	<hr/>	115,249,07

Unadjusted Debits:

Rents Paid in Advance.....	\$ 75,269	
Other Unadjusted Debits.....	5,395,691	
	<hr/>	5,470,96

Total..... \$2,359,209,49

Liabilities

Stock:

Capital Stock (par value \$50 per share)	\$ 658,387,700
Premium Realized on Capital Stock from January 1, 1909	10,142,739

Long-Term Debt:

Funded Debt of Pennsylvania Railroad Company* \$566,010,720	
Funded Debt of Acquired Companies Assumed by Pennsylvania Railroad Company*	30,863,000
Funded Debt Assumed*	23,699,000
Guaranteed Stock Trust Certificates	7,478,250
Equipment Trust Obligations	62,374,000
Girard Point Storage Company, First Mortgage 3½s 1940	1,500,000
Mortgages and Ground Rents Payable	189,164
	<hr/>
	692,114,134

Current Liabilities:

Traffic and Car-Service Balances Payable	\$ 8,157,114
Audited Accounts and Wages Payable	16,662,519
Leased and Affiliated Companies and Various Funds—Deposits	14,274,878
Railroad Retirement—Taxes—Employees	1,519,465
Miscellaneous Accounts Payable	2,422,366
Interest Matured Unpaid	2,045,034
Dividends Matured Unpaid	1,095,051
Funded Debt Matured Unpaid	58,831
Unmatured Interest Accrued	5,217,672
Unmatured Rents Accrued	5,752,384
Other Current Liabilities	1,010,207
	<hr/>
	58,216,421

Deferred Liabilities:

Other Deferred Liabilities	2,659,470
--------------------------------------	-----------

Unadjusted Credits:

Tax Liability	\$ 18,427,694
Railroad Retirement—Taxes—Company	1,520,878
Railroad Unemployment Insurance—Taxes—Com- pany	1,929,084
Premium on Funded Debt	113,907
Reserve for Injuries to Persons	2,660,101
Reserve for Loss and Damage—Freight	2,299,635
Accrued Depreciation—Road	38,272,648
Accrued Depreciation—Equipment	302,536,704
Accrued Depreciation—Road—Leased Lines	31,836,896
Accrued Depreciation—Equipment—Leased Lines Other Unadjusted Credits	69,498,146
	<hr/>
	480,958,072

Corporate Surplus:

Additions to Property through Income and Surplus \$175,174,897	
Funded Debt Retired through Income and Surplus 11,710,339	
Sinking Fund Reserves	873,814
Miscellaneous Fund Reserves	103,548,150
	<hr/>
Total Appropriated Surplus	291,307,200
Profit and Loss	165,423,793
	<hr/>
Total	\$2,359,209,490

analyzed in some detail. The first matter to consider here is the proportions of total investment made up of bonds, preferred stock, and common stock and surplus. On the average, the proportion represented by bonds is larger for railroads than for industries. As shown above (page 471), the proportion of bonds to total railroad capitalization (bonds plus stocks) is about 57 per cent; the proportion of bonds to the total capital structure (bonds plus net worth), about one half. Because earning power varies considerably among railroads, much more emphasis is placed upon the relation of earnings to fixed charges than upon the capital structure, although it is desirable that not more than one half of the capital structure consist of funded debt.

Total capitalization, as well as capitalization by classes of securities, may be reduced to a per mile basis by dividing the total amount of securities, or the amount for any class, by the number of miles of road owned. If, however, capitalization is to be compared with the miles of road *operated*, the basis most commonly employed, it is necessary to make allowance for the leased railroad mileage, which is operated by so many of the larger systems.¹⁷ The customary method of making an adjustment for the investment in this rented property is to capitalize the rentals paid for its use at the arbitrary rate of 5 per cent and to include the result, rather than to attempt to include the bonds and stocks of the leased lines. Total capitalization of a road, then, for comparative purposes, will include bonds and stock outstanding and net rentals capitalized at 5 per cent.

The reduction of total capitalization to a per mile basis is desirable for purposes of comparing the capital structures of various roads. When such comparisons are made, however, it must be recalled that a great many other factors are to be considered at the same time. The traffic density of the roads under scrutiny, the character of the traffic hauled, and the nature of the territory through which the roads run are all matters of vital importance and may explain wide differences in per mile capitalization figures of various roads. A total per mile capitalization of \$60,000 to \$75,000 may be high for roads operating in the Northwest, where traffic density is light and construction costs are far lower than in the densely populated area east of Chicago. On the other hand, a total capitalization per mile of \$200,000 may not

¹⁷ Likewise, an adjustment should be made for nontransportation assets where these are relatively important, and investment in such assets should be deducted from capitalization.

be excessive for such roads as the New York Central or the Pennsylvania, which enjoy great passenger and freight density and which operate through thickly populated areas where land values are very high.

Most roads in trunk line territory, which extends from Chicago to the Atlantic Coast, will run from \$150,000 to \$250,000 per mile of road. In western territory, per mile capitalization will normally average between \$40,000 and \$75,000 per mile. The net capitalization of all roads in the country, excluding switching and terminal companies, in 1938 amounted to \$17,987,982,640, which was equivalent to \$76,449 per mile of road. In this figure surplus was not considered. Total investment for all roads, as represented by the asset road and equipment, however, was somewhat higher, amounting to \$108,871 per mile in 1938.¹⁸ Per mile capitalization data are not significant by themselves. A road can support a heavy capitalization where traffic density is likewise heavy and traffic is profitable. The Chicago, Milwaukee & St. Paul was unable to support a capitalization of \$60,000 a mile at a time when the New York Central was able to support a capitalization of \$190,000 per mile and show a reasonable profit.

Current liabilities. The next item under liabilities, "Current Liabilities," includes the various items that one would normally expect there. "Traffic and Car-Service Balances Payable" and "Audited Accounts and Wages Payable" include, for the most part, payroll accruals and accounts payable arising out of railroad operation. The other items, except "Miscellaneous Accounts Payable," include accruals on funded and unfunded debt and rents accrued. The tax liability, which is properly a current obligation, is shown under a subsequent heading. When earning power is low, the presence of "Loans Payable," representing, as a rule, bank loans, is regarded as a possible sign of weakness.

Other items. Under "Unadjusted Credits" the most important item is "Accrued Depreciation." This is an offset reserve and should be deducted from the road and equipment accounts, respectively, in order to ascertain their book value. The "Surplus Account" is generally divided into two parts: one part is called "Appropriated Surplus," which represents a permanent investment in property; the other, "Profit and Loss Surplus," which is available for the payment of dividends if the cash position permits.

¹⁸ *Statistics of Railways in the United States, 1938*, p. 8-116.

Purchase of railroad securities: bonds. After studying all the factors relative to the financial operations of the road and its profit-making possibilities, the investor must further determine the status of the particular bond under consideration in relation to other securities of the road. If all the credit obligations of a road were in two or three categories, representing first, second, and third liens against all its properties, the matter of determining the status of each issue of bonds would be relatively simple. In practice, however, the financial structures of most railroads have been built up over a period of years through the acquisition of a division here and a division there. Part of a road may have been built by affiliated construction companies, part acquired through a merger, part by a lease arrangement, and part by the purchase of the stocks or the actual assets of other corporations. The funded debt of the parent company, therefore, comprises an intricate mass of underlying, junior, and debenture bonds, secured by various mortgages on specific trackage or by a general unsecured claim against the entire system. While it is possible to reduce the total aggregate burden of these obligations to a per mile basis, such a figure is more important as a test of the road's general credit than that of any particular issue of bonds, unless it happens to be the weakest debenture or junior lien.

It is also true that the total burden of these obligations in respect to earning power, usually measured as the number of times the combined fixed charges (interest plus rentals) have been earned, is valuable when the road's position as a going concern is tested, although such an analysis fails to indicate in any way the priority in claim going with an individual issue of bonds, or the advantages that any particular issue would enjoy in case of foreclosure. Such information is available only through a study of the specific units of road pledged under a given mortgage and the relative value of such sections to the road in question. Underlying, or first mortgage, bonds on important sections of the road—that is, on sections over which traffic density is sufficient to return an excess of income over fixed charges—are better secured than underlying mortgage bonds on sections where the traffic density is light and earnings fail to equal charges. In the event of receivership, unquestionably the holders of the first issue of bonds would be well taken care of, while the holders of the second issue might fare no better than the unsecured cred-

itors of the road.¹⁹ The obvious conclusion is that a bond, unless it is the obligation of a road whose general credit is high, should be secured by asset values substantially in excess of the amount of bonds outstanding, and by earnings substantially in excess of charges. The bond cannot be considered of investment quality unless earnings average at least two times interest requirements.

When a railroad goes into receivership, it is the principal aim of the receivers, as well as of the reorganization committee, to cut down charges. Consequently, they look over the railroad properties and compare earnings on different sections of the road with the expenses, including charges, that properly belong to each section. They may find one section with only a small first mortgage outstanding, where interest charges are earned four or five times. On another section there may be two or three bond issues outstanding, while earnings are insufficient to equal the charges even on the underlying securities. First, or even junior, mortgage bonds of the first section might easily be left undisturbed, whereas the holders of the bonds covering the second section would be required to make sacrifices. If the bondholders did not wish to accept the terms offered by the reorganization committees, the most they could do would be to foreclose. If the section had not been profitable prior to default, such action might bring little or no relief. As a practical matter, therefore, the bondholders would probably do better by accepting the terms offered than by foreclosing, for a section that is unable to earn charges when operating with the whole unit as a going concern is less likely to earn charges when operated independently.

When a railroad's financial condition is such that some doubt as to its ability to refund exists, close attention will be given to bond issues maturing in the proximate future. To meet this hazard, and sometimes to aid railroads needing funds to pay fixed charges and taxes, the Reconstruction Finance Corporation and the Public Works Administration have made \$866,084,961 of loans, of which \$273,411,953 has been repaid and \$127,020,000

¹⁹In order to distinguish the position of the liens of the various bond issues, special maps of the various systems are published by White and Kemble (New York), which show graphically the priority and mileage of each bond issue. The mortgage maps of H. H. Copeland and Son (New York) show the traffic density on the various sections of mileage, an especially useful feature in judging the smaller divisional liens.

has been sold to the public, leaving an unpaid balance of \$465,-654,008 as of December 31, 1939.²⁰

A railroad reorganization is always a lengthy process for a major road because of the large sums at stake and the financial complexities. Current reorganizations have been especially prolonged in the hope that a recovery of earnings would permit less drastic treatment of security-holders. This optimism has gradually disappeared.

The simplest method of showing the generally impaired position of railroad bonds, particularly junior liens, as a result of reduced earnings is to show the relation of the amount of earnings available to the fixed charges in recent years. The following table shows these figures for the period 1921-1939:

EARNINGS, FIXED CHARGES, AND TIMES EARNED FOR CLASS I
RAILROADS: 1921-1939*

(Millions of Dollars)

Year	Net Railway Oper. Income	Gross Income	Fixed Charges†	Net Income	Times Fixed Charges Earned
1921.....	601	976	662	314	1.47
1922.....	760	1,025	656	370	1.56
1923.....	962	1,223	667	555	1.83
1924.....	974	1,243	685	558	1.82
1925.....	1,112	1,389	688	701	2.02
1926.....	1,213	1,511	679	809	2.16
1927.....	1,068	1,379	686	673	1.98
1928.....	1,173	1,493	683	787	2.15
1929.....	1,252	1,611	693	897	2.24
1930.....	869	1,228	683	524	1.77
1931.....	526	830	672	135	1.20
1932.....	326	551	666	139 def.	.79
1933.....	474	686	678	6 def.	.90
1934.....	463	666	665	17 def.	.98
1935.....	500	688	648	8	1.03
1936.....	667	852	653	165	1.27
1937.....	590	765	629	98	1.18
1938.....	373	528	614	185 def.	.82
1939.....	589	750	608	93	1.19

* Compiled from reports of the Interstate Commerce Commission.

† Includes interest on funded and unfunded debt, amortization of discount, rent of leased roads. Excludes income bond interest after 1935.

Individual roads vary considerably from any average. Thus, in 1932-1934 some roads showed a satisfactory coverage of charges, while others passed into receivership, and still others

²⁰ *Review of Railway Operations in 1939*, Bureau of Railway Economics, p. 15.

were saved from that fate by loans from the Reconstruction Finance Corporation and other sources.

At the end of 1939, 39 Class I railroads, operating 75,114 miles or 32 per cent of all Class I mileage, were in receivership or trusteeship.²¹ The problem of analyzing the securities of such a company involves the study of the operations as already outlined for the normal road plus (a) an estimate of probable future securities to be exchanged for present issues, (b) the likely interval needed to complete the reorganization, (c) the possible effect of changes in policies upon earnings, and (d) the position of the new securities in relation to projected earnings.

Preferred stocks. The preferred stocks of railroad companies vary more in character than the preferred stocks of utilities. When dividends on the preferred stock issue are guaranteed, as frequently happens where a subsidiary company is leased by the parent company, a railroad preferred stock is secure in proportion as underlying assets and earnings exceed the amount of stock outstanding and dividend requirements. Sometimes this support may be weaker than the general credit of the guaranteeing company, in which case the latter factor will determine the standing of the issue. A number of railroad preferred issues have arisen in reorganization and are noncumulative. The most common measure of the investment quality of preferred stocks, other than guaranteed issues, is the number of times the combined fixed charges and preferred dividends have been earned. Because a considerable funded debt almost invariably precedes the dividend claim, preferred stocks require close attention. Much of the same sort of analysis of the past statistical and financial record and estimate of future prospects that is so necessary in the selection of common stocks because of the risk factor is essential in this division of securities.

Common stocks. Railroad common stocks will sell at prices that reflect current per share earnings, current dividend rates, and future prospects. The future possibilities of a railroad can be estimated only by careful study along the lines already suggested. While it is impossible to state the relation that should obtain between the market price of a given railroad stock and its per share earnings, the data in the following table for both dividend and non-dividend paying common stocks of a group of

²¹ Bureau of Railway Economics, *A Review of Railway Operations in 1939*, p. 14 (Washington, D. C.: Association of American Railroads, 1940).

thirty-one leading railroads show certain general tendencies that have obtained in the past:²²

RATE EARNED ON AVERAGE MARKET PRICE OF
COMMON STOCKS OF LEADING RAILROADS

Year	(Medians)		
	All	Dividend Paying	Nondividend Paying
1924.....	13.4%	12.0%	17.3%
1926.....	13.1	12.6	13.7
1928. . .	9.2	9.1	10.2

The figures show that, following the discouraging record of the war and postwar years, prices of rail stocks were very low in relation to earnings in 1924. As pessimism gradually waned, rail stocks rose to a more normal relation with earnings. Dividend yields showed a similar decline—from 6.35 per cent in 1924, to 5.79 per cent in 1926, and 4.87 per cent in 1928.²³ The variation of these percentages among the different railroads was considerable.

Figures already cited for a list of twenty railroad common stocks showed that the percentage earned on market price declined from 8.5 per cent in 1928, to 8.3 per cent in 1929, and 6.2 per cent in 1930.²⁴ The drop in 1930 was the result of a more rapid decline in earnings than in market price. Earnings since then have been at such a low level as to make any group computations of doubtful value.

With so many railroads reporting only nominal earnings or deficits for their stock in the 1930's, no really suitable measure of the price-earnings relation can be prepared for those years. In the absence of earnings, stock prices become extremely speculative estimates of the discounted future earnings. While individual railroads will fare differently as a result of the changing general business conditions of their respective territories, the extent to which the railroads as a whole will regain something of their former financial position will be governed by three major

²² Guthmann, H. G., "Railroad Security Yields to Investors: 1924, 1926, and 1928," *Journal of Land and Public Utility Economics*, August, 1931, p. 260. A study in the *Wall Street Journal*, October 21, 1925, reported the following average percentages earned on market price for twenty railroads:

1923.....	14.40%
1924.....	10.91
1925.....	10.76

²³ *Ibid.*, p. 259.

²⁴ See page 78.

factors: (1) the recovery of traffic volume; (2) the level of their rate structure; and (3) their operating costs.

The traffic factor is of primary importance. From 1925 to 1929 the rapid development of competing forms of transport and the increased efficiency with which industry was using coal (a major source of railroad tonnage) served to prevent traffic growth rather than to produce an actual recession. A study by the Interstate Commerce Commission reached the conclusions (1) that if after 1928 railroad tonnage had paralleled the course of industrial production, the volume of freight carried by the railroads in 1937 would have been about one sixth greater than it actually was, and (2) that after 1935 the railroads had apparently held their own against competing carriers.²⁵ However, tonnage had a further decline relative to industrial production, the 84.9 per cent of 1937 falling in 1938 to 78.7 per cent of estimated potential tonnage, suggesting further inroads of competing carriers as a result of the depression in the latter year.²⁶ It must be remembered that heavy industry, which provides much of the bulky tonnage for which the railroad is a particularly efficient carrier, has lagged in its recovery. A revival of construction and an expanding national defense program should be potent traffic stimulants.

With respect to the second factor, railroad rates, little need be said save that they have shown a continuing tendency to decline. The railroads themselves have initiated many reductions in their efforts to retain or recover traffic that would otherwise go to competing forms of transport. Existing rates should be adequate if traffic volume recovered. Indeed, the inability of the railroads to cut rates because of their financial position undoubtedly gave competing carriers, with their more flexible rates and costs (especially wage costs), an opportunity in the past decade to gain a competitive advantage. Rate increases would become a problem only if a rising price level should raise operating costs substantially above the 1929 level. Then, the customary tardiness which characterizes rate adjustment might become a significant handicap.

Operating costs, the third general factor, are extremely important. To a considerable extent, the ability of the railroads to control costs will determine their ability to hold marginal traffic,

²⁵ Interstate Commerce Commission, *Fluctuations in Railway Freight Traffic compared with Production, Class I Steam Railways, 1928-1937*, p. 1.

²⁶ *Ibid.*, 1928-1938, pp. 3-4.

which, if it goes to competing forms of transportation, may keep operations from showing a reasonable financial return. Hope may be found in the improvement achieved in the way of lowered costs during the period from 1921 to 1938. During this interval American railroads increased the average tractive power of their locomotives from 36,935 to 49,803 pounds, average freight car capacity from 42.5 to 49.4 tons, average freight trains from 38 to 48 cars, average freight train speed (including stops) from 11.5 to 16.6 miles per hour, and reduced the fuel needed to move 1,000 tons of freight one mile from 162 to 115 pounds.²⁷ Further economies should be possible. The cost factor explains the current interest in Diesel engines, electrification, streamlined engines and trains, lighter construction materials for equipment to reduce dead weight, and the more efficient handling of freight in the large city terminals.²⁸ The story of progress will be written in the income accounts and operating statistics of the individual roads. Because further improvements in efficiency may take place in other fields of transportation also, an alert and aggressive policy upon the part of railroad management will be essential for financial recovery of common stocks.

Summary. In this chapter it has been possible to give only a cursory treatment of investment analysis as applied to railroad securities. This subject is one of the most complex branches of investment. Acquaintance with the more important bases of comparison have been touched upon, and will undoubtedly help the beginner. Yet when it is recalled that there are 169 Class I roads in this country—that is, roads with annual gross revenues of over \$1,000,000—and that the number of different securities outstanding runs well into the thousands, the complexity of the field is evident. Furthermore, statistical comparisons, while

²⁷ Sherman, Joseph V., "Trends in Transportation," *Barron's* August 5, 1940, p. 8.

Another comparison of past and current operating conditions, that discusses the adequacy of our rail transport system in a national emergency is *Railway Capacity and Traffic Control* by M. J. Gormley (Washington, D. C. Association of American Railroads, 1939).

²⁸ In connection with these topics, the reader may find the following articles of interest. "Electricity in Railroad Service," *Railway Age*, Jan. 27, 1940, p. 212; "Diesel on Wheels," *Fortune*, Dec., 1934, p. 106; a series of three articles in the *Scientific American*: Dickerman, W. C., "There's Life in the Old Iron Horse!" April, 1935, p. 180; Wright, G. L., "Electricity's Place in Railroad," May, 1935, p. 252; Codrington, G. W., "Diesels on Rails," June, 1935, p. 308. See also three articles in *Railway Age*: Ragsdale, E. J. W., "Materials Economics in Light-Weight Railway Cars," Jan. 12, 1935, p. 52; "Large Savings Claimed for Terminal Unification," Feb. 23, 1935, p. 299; "More for the Transportation Dollar," May 25, 1940; and Sherman, J. V., "Trends in Transportation," *Barron's*, Aug. 5, 1940, p. 8.

they have their place in railroad analysis, do not tell the whole story. Not until a complete survey has been made of the territory through which a road runs, in respect to physical characteristics, industries, resources, terminals, and relations with connecting roads, in addition to a statistical study of its performances over a period of years, can the investor be said to have familiarized himself with the real investment merits of a road's securities. Mastery of the field can be expected only after long study and constant attention to detail.

Financial Institutions—Banks and Insurance Companies

Common characteristics of financial institutions. We shall consider in the present chapter the securities of certain selected types of financial institutions: banks, life insurance companies, and fire insurance companies. These three types of institutions have at least one common characteristic: their essential business is that of investing. This statement applies even though the business of banking, especially as conducted by the average commercial bank, has recently been extended to include the furnishing of a multitude of collateral services, such as the administration of estates, the providing of trustee services, and the operation of safe-deposit vaults. Formerly some of the leading commercial banks conducted an investment banking business through subsidiary or affiliated companies. Insurance companies likewise have sources of revenue other than from investments: namely, revenues derived from an excess of premiums over losses paid. In neither instance, however, can the income from sources other than investments be said to constitute a major portion of total net earnings. Investment trusts, which will be described in the following chapter, are essentially investment undertakings, their sole revenue being derived from investments either in the form of dividends and interest received from the securities they hold or in the form of profit from the purchase and sale of securities. Despite the similarity found in these various types of undertakings, there are, however, sufficient points of difference to warrant a separate discussion of the in-

vestment characteristics of each type. Consideration will first be given to bank stocks.

Bank Stocks¹

Double liability of bank stocks. The first point to be emphasized in a discussion of the securities of banks is that only one type of security is generally found in their capital structure: namely, common stock. As a temporary emergency measure, the Federal Government found it desirable to provide capital funds during the banking crisis of 1933 to banks which were deemed solvent but were suffering through an inadequate net worth. To provide an instrument subordinate to the position of the depositor but prior in claim to that of the ordinary stockholder, preferred stock and, in some cases, income debentures were created for subscription by the Reconstruction Finance Corporation. The intention is to retire these special claims as soon as asset values increase or there is an opportunity to sell additional ordinary stock.

The stocks of banks have in the past almost invariably carried double liability. That is, when a bank became involved in financial difficulties, the persons in whose name the stock was registered were liable for an assessment equal to the par value of their stock, in addition to the ordinary liability of any unpaid assessments on the original subscription price. The special liability applied not only to all national banks, chartered by the United States, but to many state banks as well, and arose from the feeling that because of the fiduciary relationship that banks bear to their depositors special protection was desirable. The measure

¹ The following articles by Paul Gounrich, which appeared in the *Annalist*, may prove helpful as collateral reading:

1. "The Value of Bank Shares as Investments," March 23, 1925, p. 413.
2. "Bank Shares: The Equitable Trust Co., N. Y.," May 4, 1925, p. 613.
3. "Testing the Value of a Bank Stock," June 29, 1925, p. 869.
4. "A Survey of New York City Banks and Banking," July 17, 1925, p. 53.
5. "Changing Trends in New York City Banking," July 31, 1925, p. 117.
6. "Banking Position of the New York Federal Reserve Bank," Aug. 14, 1925, p. 183.
7. "A Study of Changes in New York Banks," Sept. 1, 1925, p. 279.
8. "Analysis of the Banking Economy of New York City: Price Determining Ratios," Dec. 25, 1925, p. 797.

The ratios between market value, and earnings, and book value during the period covered by these articles were probably more reasonable than in the exaggerated boom markets of the period 1928-1929, or in the deflated and panicky years immediately thereafter when bank failures occurred in unusual numbers.

proved to be notoriously ineffective, and the Banking Act of 1933 abolished double liability for stock of national banks issued subsequent to the passage of that act. In 1935 legislation was passed providing for the termination of this feature for the remaining stock of all national banks after July 1, 1937, contingent upon the publication by the individual bank of six-months' notice of the change.

The feature of double liability should be considered by the investor before he purchases bank stocks. Where the stock of the bank has advanced in price to a point considerably above par, the liability may be small in relation to the amount invested. It is not uncommon in ordinary times for the shares of some of the more important metropolitan banks to sell at prices ranging from \$500 to \$1,000, par being \$100. The higher the price, the less the significance attached to the matter of the additional assessment that the holder might conceivably be called upon to meet. At the same time, it may be said that the possibilities of such an assessment become more remote as the bank's shares advance in price above the par value. The reason for this statement lies in the fact that such market advances ordinarily bear some relation to the surplus of the company. That is, an advance in the price of a bank's stock suggests a larger surplus, which, in turn, affords greater protection to creditors and minimizes the chance of failure on the part of the bank to meet its liabilities when due.

The business of commercial banking explained. A complete understanding of the investment value of bank stocks depends to some extent on a knowledge of the banking business. We refer here to the business of commercial banking, because this is the only type of banking business conducted on a large scale under the corporate form of organization. Most of the large investment banking houses are partnerships, whereas many savings banks, particularly in the New England and the Middle Atlantic States, are mutual. Stock savings banks are relatively unimportant. The business of a mutual savings bank is run by a board of trustees, solely in the interest of its depositors, who pay a rate of interest (technically a dividend) dependent upon the earnings, which are derived almost entirely from first mortgages and bonds, rather than from commercial loans. Many commercial banks and trust companies have expanded their savings, or time-deposit, business in recent years. Indeed, most of the deposit growth of national banks between 1920 and 1930 was in

that field; time deposits rose from \$3,485,000,000 in 1920 to \$8,753,000,000 in 1930, as compared with an increase in demand deposits from \$13,670,000,000 to \$14,516,000,000 during the same period.² The mutual savings banks, which exist in only eighteen states, are much more closely regulated as to investments than the commercial bank and have had almost no failures even during recent years.

The commercial bank, whether it be a national bank, a trust company, or a state bank, occupies a position of strategic economic importance in the business community it serves. In addition to receiving deposits, it makes loans to business men on short-term notes, either secured or unsecured. For notes discounted by corporations, partnerships, or individuals who are engaged in a reputable business, the proceeds of which are to be used for strictly business purposes, no security is required other than the customer's signature on the note. For loans made for other than business or commercial purposes, additional security is ordinarily required in the form of either indorsements or collateral. Accordingly, one finds two items listed under the resources of most banks: unsecured, or commercial, loans; and loans secured by a pledge of collateral.

We shall not enter here into an exhaustive analysis of the theory of banking, for this ought to be reasonably familiar to the average student of economics. While the lending capacity of the banking system depends at any given time upon the amount of cash reserves, the individual bank is limited by the amount of funds supplied by its stockholders and depositors.³ To the extent that deposits can be obtained from the community and loaned so as to earn more than the cost of services to the depositor, the return upon the stockholders' investment will be enhanced. Reserves, in the banking sense, consist of the asset cash, which is available to meet withdrawals and which represents amounts from which no investment return can ordinarily be expected. Even in the investment of the remaining funds of the bank, a policy that sacrifices yield to safety and liquidity is expected. In studying the balance sheet of the bank, the investor will look for assets that may be readily disposed of on

² For a chart showing the deposit changes and the corresponding asset changes of national banks during the period 1920-1932, see Guthmann, H. G., *Analysis of Financial Statements* (New York: Prentice-Hall, Inc., rev. ed., 1935), p. 467.

³ For the solution of this generalization—"the riddle of banking"—the student is referred to Bradford, Frederick A., *Money and Banking* (New York: Longmans, Green & Co., 4th ed., 1940), pp. 191-205.

short notice to meet deposit withdrawals. Conservative banking practice requires that certain "secondary" reserves of liquid investments be maintained by the bank in proportion to demand liabilities, as well as the cash reserves required by law.

In addition to maintaining adequate actual cash or legal reserves in order that it may be able to meet its deposit liabilities and thus avoid temporary embarrassment, the bank should have sufficient capital and surplus to safeguard its creditors against undue shrinkage in its assets. That is, a bank with a capital and surplus of only \$150,000 could hardly be expected to carry deposits of \$50,000,000 on its books. Under such conditions, a very small shrinkage in the book value of its assets would wipe out the entire investment of the stockholders and threaten loss to the depositors of the bank or to other creditors. It is the presence of an adequate capital and surplus, therefore, that protects the depositors and the creditors of a bank in the same way that the common stock and the surplus of a manufacturing or public utility company protect the bondholders, or other creditors. In the case of banks, however, it is not necessary that the combined capital and surplus should bear anywhere nearly so high a ratio to liabilities as in the case of many corporations, on account of the relatively low element of business risk involved in the operation of a bank, if it confines itself to high-grade liquid commitments. In the past the average ratio of deposits of national banks to the stockholders' net worth has been approximately 6. The ratios in 1930, 1935, and 1939 are shown in the following table:

RATIOS OF DEPOSITS TO NET WORTH FOR ALL
NATIONAL BANKS: AS OF JUNE 30*

(Millions of Dollars)			
<i>Net Worth</i>	<i>1939</i>	<i>1935</i>	<i>1930</i>
Capital Stock.....	1,563†	1,810†	1,744
Surplus.....	1,171	832	1,591
Undivided Profits.....	449	298	546
Reserve for Contingencies, etc.....	206	147	—
Total.....	3,389	3,087	3,881
Total Deposits ..	29,469	22,518	23,269
Ratios of Deposits to Net Worth ..	8.70	7.29	6.00
Number of Banks.....	5,209	5,431	7,252

† Includes preferred stock.

* Compiled from *Annual Reports of the Comptroller of Currency*.

For large metropolitan banks having large cash reserves and considerable sums in short-term United States Government obligations and demand collateral loans, a somewhat higher ratio is regarded as permissible because of the smaller risk of loss on such assets.

Measuring the prosperity of banks. Let us consider next the relationship that a well-established bank bears to the business community it serves. Performing, as it does, a necessary service, it is entirely logical that its total business should grow at the same rate as the business of the community develops. Note that we suggest a comparison, not with the increase in population, but with the growth in business transactions in a community. Even though it is possible that the growth in population and business may be proportional, such a relation is by no means always true. Business development of a community may expand at a faster or a slower rate than the growth in population. When we analyze bank stocks, our interest centers primarily on the increase in the aggregate business of a community, rather than on the rate at which population increases. Owing to the nature of the banking business, it is inevitable that banks which are located in communities whose commercial activities are basic and increasing should offer excellent investment opportunities, since their volume of business ought to increase at least as fast as that of the community.

Such increases in the volume of business are usually made possible when the bank transfers a part of its profits each year to its surplus account, instead of paying all of them out as dividends. Such accretions to surplus give the bank the necessary funds on which to expand. They provide additional funds for investment, the basis for safely accepting increased deposits, and permit the bank to offer a larger credit limit to borrowing customers. Surplus, reinvested in this way, may be said to "compound" in the interest of the common stockholder. Where the business of the bank increases at so rapid a rate that it cannot be financed out of surplus accretions, new stock is issued to the present stockholders at prices below the current market price, thus creating valuable subscription rights. These growth possibilities serve to explain the high market prices at which bank shares have sold in relation to book values, dividends, and earnings.

Book value and market value. Very often bank shares, particularly of large banks, sell for more than their book value per

share (that is, capital stock, surplus, and undivided profits divided by the number of outstanding shares). A closer relationship between market value and book value would be expected in the field of commercial banking than in many other fields, because the bulk of the supporting assets consists of cash and credit instruments payable in dollars. A balance sheet with such assets should reflect current values much more closely than, say, an industrial balance sheet showing real estate, equipment, and inventories of variable value. However, in times of extreme depression, bonds and loans may suffer badly, and if they are not written down promptly, the balance sheet will overstate values. On the other hand, strong, over-conservative banks may understate assets somewhat by writing down defaulted loans to less than their recovery value, depreciating the usually small real estate items excessively, and setting up profits from the sale of bonds as a reserve for future losses. The last item would not be misleading if it were distinctly shown in the balance sheet as a reserve, but the bank may treat it as a valuation reserve and show its investment account at the net figure without mentioning the deduction. Furthermore, because a commercial bank must be able to liquidate assets at all times in order to meet deposit withdrawals, accounting usage favors carrying bond investments like an inventory, at the lower of cost or market value. Consequently, after a period of rising bond prices, the balance sheet figure will fail to disclose the unrealized profit on bonds purchased at lower market levels. Since 1938, member banks of the Federal Reserve system have been permitted to carry bonds of investment quality at cost even though market is lower, so that balance sheets can also overstate liquidation value.

In the past it was usual to expect that a bank stock would sell above its book value. While the stocks of large banks may not be representative of the whole field, it is of interest to note that over a 26-year period ending with 1930, the stocks of leading New York banks sold on the average at $1\frac{3}{4}$ times book value, as shown in the accompanying table.⁴ Prior to 1925, these stocks, as a group, at no time sold for more than twice book value, and did not fluctuate greatly from a ratio of about $1\frac{1}{4}$ times book

⁴Data for 1905-1930 for 25 banks from *Bank Stock Survey—A 26-Year History* (New York: Gilbert Elliot & Co., 1931). Used by permission here. In this period book value included capital and surplus funds of affiliated securities companies, where known. Such affiliates were subsequently forbidden. Data for 1937-1939 were compiled by the authors for the 17 largest banks for which figures were available.

COMPOSITE HISTORY OF LEADING NEW YORK BANK STOCKS

Year	Per Cent Earned on Average Book Value*	Per Cent of Average Book Value Paid in Dividends	Per Cent of Earn- ings Paid Out in Dividends	—RATIOS AT AVERAGE— MARKET VALUE		
				Times Book Value	Times Earnings	Dividend Yield Per Cent
1905.....	9.3	5.26	56.6	1.78	19.0	2.97
1906.....	10.9	5.50	51.0	1.61	14.8	3.45
1907.....	9.7	5.53	57.2	1.36	14.1	4.07
1908.....	11.1	5.50	49.5	1.30	11.8	4.22
1909.....	10.4	5.40	52.0	1.53	14.8	3.51
1910.....	8.7	6.10	70.5	1.59	18.4	3.88
1911.....	9.9	6.07	61.6	1.54	15.7	3.94
1912.....	9.0	5.94	66.5	1.62	18.1	3.68
1913.....	8.0	6.50	81.0	1.46	18.3	4.44
1914.....	5.2	6.55	126.0	1.36	26.1	4.82
1915.....	10.6	6.44	61.0	1.42	13.4	4.55
1916.....	13.5	7.45	55.5	1.53	11.4	4.90
1917.....	9.4	6.74	72.0	1.39	14.9	4.83
1918.....	12.3	6.79	55.2	1.27	10.3	5.33
1919.....	12.8	6.70	52.3	1.46	11.4	4.60
1920.....	13.0	7.49	57.7	1.36	10.5	5.50
1921.....	6.0	7.43	125.0	1.19	20.0	6.25
1922.....	9.9	7.27	73.8	1.33	13.5	5.46
1923.....	10.7	7.37	69.0	1.41	13.2	5.22
1924.....	10.7	7.20	67.4	1.54	14.4	4.68
1925.....	12.0	7.50	62.3	1.94	16.1	3.88
1926.....	11.9	7.57	63.5	2.02	16.9	3.75
1927.....	12.6	7.85	62.5	2.51	20.1	3.11
1928.....	12.1	7.38	61.0	3.38	27.9	2.18
1929.....	12.2	6.92	56.5	4.29	35.0	1.62
1930.....	7.4	6.40	86.0	2.29	30.8	2.80
Average for 26 Years.....	10.5	6.65	67.3	1.75	17.4	4.15
1937.....	6.5	4.47	72.0	1.32	19.9	3.64
1938.....	5.9	4.34	78.5	.93	16.4	4.69
1939.....	5.7	4.21	77.5	1.05	18.2	4.53
Average for 3 years.....	6.0	4.34	76.0	1.10	18.2	4.29

* Book value, or total capital funds, as used here, consists of capital, surplus, and undivided profits.

value for any length of time. In the boom years 1926-1930, the ratio soared over 2 but with the reduced earning power and dividends per dollar of book value, the average fell to 1.10 for the three years 1937-1939.

Relation of deposits and stockholders' investment. The ratio of deposit liabilities to the stockholders' investment, or net worth,

is examined for two purposes: first, as a measure of profit possibilities to the stockholders, to be derived from depositors' funds; and second, as a measure of the margin of protection provided the depositors by the owners' investment. Since the bank hopes to earn more from the investment of depositors' funds than it spends in rendering services to the depositor, the presence of large amounts is indicative of profit potentialities. On the other hand, too large liabilities to depositors in relation to the stockholders' investment may indicate inadequate protection of depositors. In recent years the ratio of deposits to net worth has risen from a level of about 6 to well over 8 for all national banks. Large metropolitan banks which carry an unusually high proportion of their assets in cash and short-term United States Government obligations have considered it permissible to show a higher ratio (see page 524). A group of 28 New York City banks showed at the end of 1940 a total net worth of \$1,420,000,000 and deposits of more than \$18,000,000,000, or a ratio of over 12.

Ratio of earnings to net worth. In spite of their quasi-public nature, banks in reporting on their condition rarely state more than the amount of net earnings, so that earnings analysis is often confined to a comparison of that figure with the book and market value of the bank's stock. The percentage earned on the average book value of leading New York City banks was shown on page 527. The average of 10.5 per cent for the 26-year period was distinctly higher than the figure for the average national bank, as may be judged from the table on page 529, which shows the earnings and dividends of all national banks as percentages of their combined capital, surplus, and undivided profits.⁵ The data for 1937-1939 show a reversal, presumably due to the tendency of idle funds to concentrate in New York and the greater decline in the interest rates for the open-market, highly liquid paper which is more likely to be held by metropolitan than by country banks.

A comparison of the percentage paid in dividends shows that formerly the figure for all national banks was lower than that for leading New York banks but was substantially the same in 1937-1939. The former difference permitted these metropolitan banks to retain more earnings for reinvestment than the average national bank, but the situation has been reversed. Ability to reinvest earnings at rates such as these banks have shown leads to growth in value at a very satisfactory compound interest rate

EARNINGS AND DIVIDENDS OF NATIONAL
BANKS IN RELATION TO NET WORTH:
YEARS ENDED JUNE 30, 1920-1939

<i>Year</i>	<i>Net Profits</i>	<i>Dividends</i>
1920.....	10.8%	5.6%
1921.....	7.7	5.7
1922.....	6.4	5.8
1923.....	7.1	6.2
1924.....	6.7	5.6
1925.....	7.5	5.6
1926.....	8.1	5.6
1927.....	7.8	5.6
1928.....	7.6	5.8
1929.....	8.2	6.1
1930.....	6.4	6.2
1931.....	1.4	5.4
1932.....	3.9 def.	4.7
1933.....	6.9 def.	3.1
1934.....	10.4 def.	2.6
1935.....	2.3	3.4
1936.....	7.7	4.0
1937.....	9.0	4.8
1938.....	6.4	4.4
1939.....	6.7	4.1

and would help to explain the tendency to value bank stocks at materially more than their book value.

Sometimes a high return is explainable by reason of special sources of income such as trust department earnings, safe deposit rentals, real estate income, dealings in mortgages, and formerly, profits from the security dealings of investment affiliates. Members of the Federal Reserve system are still permitted to deal in domestic civil securities. It is to be hoped that the practice of reporting special non-recurring profits or losses, such as those arising from the sale of securities, or unusual charge-offs of loans or investments, will become general, in order that the stockholder may be properly informed as to the character of the earnings reported.

Earnings and market value. While the relation of earnings to market value is very variable, it is significant that the average relation shown for New York City bank stocks was a market price

* Compiled from *Annual Reports of the Comptroller of Currency*. A study of the years 1908-1928 is presented by Posey, Rollin, "Profits of Commercial Banks," *Harvard Business Review*, July, 1930, pp. 425-434. For further discussion of the analysis of bank earnings, see Guthmann, H. G., *Analysis of Financial Statements* (New York: Prentice-Hall, Inc., rev. ed., 1935), pp. 462, 478.

17.4 times earnings, or the equivalent of a return of 5.75 per cent. This figure and the average dividend yield of 4.15 per cent indicate the high esteem in which this class of stocks was held. The huge number of failures in the period 1920-1933, particularly after 1929, has to a great extent disturbed this confidence. However, the figures for 1937-1939 show that the leading metropolitan banks still offer a low dividend and earnings return on market value. Unusual mortality of the early 1930's should have done much to eliminate weak institutions, so that the record for the future would appear more promising.

Importance of management in banking. Before purchasing bank stocks, one should make an especially close check on the management of the bank. The personnel of the bank's board of directors and their underlying policies are matters of the utmost importance to the stockholder. It is easily possible for a bank to make unsound loans and to pursue unsound policies for a considerable time without detection. Not until the failure of some of its large debtors occurs does it become necessary to write off assets. It should always be remembered that the stocks of a bank are no better than the *poorest* assets carried on its books, for the first losses must be borne by the stockholders. Unwise policies, it is true, may increase current earnings for a time, at least; but eventually they are likely to prove disastrous to creditors and stockholders alike. These words of caution are given to show that in studying the relative merits of one bank as compared with another too great reliance cannot be placed on mere statistical analysis. Equally important is a thorough acquaintance with the bank's officers and policies.

Current problems in banking. While the intimate relation of banking to the whole business community makes it responsive to a multitude of factors, the present discussion is necessarily confined to the major factors currently affecting the outlook for bank earnings and consequently the attractiveness of commitments in bank stocks. Three points which should receive particular attention are: (1) the effect where the monetary situation creates unusually low interest rates, especially for short-term loans; (2) the tendency of large corporations to avoid bank borrowing; and (3) the insurance of bank deposits. As a result of the huge liquidation of credit from 1929 to 1933, and of the policies of the Federal Government and the Federal Reserve banks, the commercial banking system has had an unparalleled accumulation of excess reserves. So long as this vast fund of

"idle money" exists, interest rates upon short-term loans are bound to remain at an unprofitably low level. With the Federal Government borrowing for short periods at a fraction of one per cent, and with prime open-market commercial paper yielding less than one per cent, profitable operations are difficult. Nevertheless, many banks are making money by cultivating borrowers, levying service charges, and developing supplementary activities. With larger deposits than ever before, profits could expand rapidly if short-term interest rates rose because of the high ratio of loanable funds and loans to stockholders' investment.

Closely related to this difficulty is the apparently increasing tendency of large-scale business to avoid bank borrowing and to acquire funds on a more permanent basis by the sale of securities. The crash of 1920 made business men acutely aware of the hazard of short-term loans which might mature in an embarrassing manner at a time of credit strain. The ease with which securities could be sold in the succeeding decade—particularly common stocks in 1928 and 1929—led to increased independence of bank credit. The question arises as to whether there may not be a continuing lack of suitable demand for bank loans sufficient to raise interest rates to a profitable level. If the depression had not taught its lesson so recently, the banks might have turned to bonds and real estate loans. However, the risk of price fluctuation in the case of the former and the lack of liquidity of the latter discourage extensive commitments in that direction. With high-grade bonds at record high prices, the risk of loss is regarded by many as considerable.⁶

Finally, the cost of deposit insurance, which is required of all banks that are members of the Federal Reserve system, and which is optional to others, may constitute a serious burden in a period of low earnings. The initial percentage levied for Federal deposit insurance under the original temporary fund was one-half per cent of those deposits eligible for insurance; whereas, under the Permanent Insurance Fund, as amended in 1935, the rate of assessment is limited to one twelfth of one per cent per annum, but is based upon all deposits, whether insured or un-

⁶ It is possible that interest rates have moved to a permanently lower level, but the commercial banker who lends chiefly deposited funds is likely to be wary of pursuing a policy based upon a possible "new era" in interest rates. For a review of mistaken forecasts, made by prominent financiers in 1899, see Rose, Dwight C., *A Scientific Approach to Investment Management* (New York: Harper & Bros., 1928), p. 269 ff.

insured. Doubts have been expressed as to the adequacy of any fund limited to the latter rate, and the possibility of increased assessments should be kept in mind.

Insurance Companies⁷

Classification. The business of insurance is ordinarily classified according to the following five groups, depending upon the type of risk assumed: life, fire, casualty, marine, and miscellaneous. The greatest investment interest at present lies in companies of the first two groups, and consequently only those groups will be considered here. The investment analysis of other types of companies, not considered here, would in any case closely resemble that of fire insurance companies.

The business of both life and fire insurance is at present conducted by two distinct types of companies: stock companies and mutual companies. In the latter case, the policyholders own the business in much the same way as do the depositors of mutual savings banks. In the former case, however, the company is conducted under the corporate form of organization, and the policyholders are only creditors of the business to the extent of their policy contracts. It is apparent that the investor's interest lies in the stock companies, not in the mutual companies.

Nature of life insurance. It is necessary to have at least a general idea of the nature of the business of life insurance before one can determine the relative desirability of the stocks of life companies from an investment standpoint, and especially before one can make an analysis of the financial data available in connection with different companies. It may be said that insurance companies deal in risks. The business of life insurance has been so long established and varies so little, however, that the types of risk in which it deals can be measured very closely. That is to say, while it is impossible to tell which members of a group of 1,000 males, age 20, will die during the ensuing year, it is possible

⁷ The following articles, which appeared in *Barron's*, will prove helpful as collateral reading:

1. G. W. Carroll, "Investment Tests for Insurance Stocks," Jan. 25, 1937, p. 7.
2. ——— "Testing Life Insurance Stocks," Feb. 1, 1937, p. 18.
3. E. A. Van Deusen, "Fire Insurance Companies Make Progress," Jan. 23, 1939, p. 13.
4. Henry W. Abbot, "Is Casualty Insurance Out of the Woods?" Feb. 13, 1939, p. 8.
5. E. A. Van Deusen, "Further Gains for Fire Insurance Companies," Feb. 12, 1940, p. 18.

to tell, with considerable precision, except in the event of a national catastrophe, how many out of the group will die. Likewise, it is possible to compute the life expectancy of a normal man at any age. Therefore, if the insuring company can spread its risks over a large group of men, it can afford to insure the life of each man in return for a premium which is computed on the basis of his life expectancy. If there were no interest to be earned on accumulated premiums, each man would have to pay annually an amount sufficient to build up a sum equal to the value of his policy at death, plus whatever operating expenses and profit were required by the company as an inducement for it to continue in business. As it happens, the amounts actually required to be paid in are immediately invested by the insurance company. Accordingly, when the premium to be charged is computed, it is assumed that a certain rate of interest will be earned on the unused portions of current premiums. This picture of the basic principles on which life insurance companies operate is, of course, very general. There are many different types of policies issued that we need not consider, since they all involve the basic principles just discussed.

Mortality tables and interest rates in common use. In the computation of the premiums to be charged for various policies, the life insurance companies of this country use one of two mortality tables. The two tables in general use at the present time are the "Actuaries" or "Combined Experience Table" and the "American Experience Table," the latter being almost universally employed for present-day policies. A somewhat newer table, the "American Men Mortality Table," has recently been compiled by a joint committee of insurance commissioners and actuaries and probably represents more accurately the actual mortality rates to which the present generation is subject. Its use is permissive in a few states. According to the last-mentioned table, life expectancy at present is longer than that assumed by the first two tables. Guided by motives of conservatism, however, most insurance companies continue to use one or the other of the two tables first mentioned. The rate of interest at which it is assumed that the unused portions of current premiums will be invested and accumulated is most generally 3 per cent. The recent low yields upon high-grade bonds have caused a greater number of companies to use this low figure.

Sources of profit for insurance companies. We may consider at this point the manner in which the insurance company ordi-

narily makes a profit. It is apparent from what has already been said that actual mortality will be less than the "expected" mortality used in setting the premium rate, so that the amounts collected will exceed the amounts required to cover actual death losses. Furthermore, the companies will generally earn more than the interest rate which it is assumed will be earned upon the temporarily unused portion of the premium. It is also possible that operating expenses may be less than the "loading"—that is, the element added into the premium to cover operating expenses. While these three profit sources offer a sum which is potentially very large, it is necessary in actual practice to share the major portion with the policyholders either in the form of low premium rates or partial participation in profits through "dividends," because of competition with the mutual companies, which do the bulk of the life insurance business in the United States.

Recent growth in life insurance business. Conditions in recent years have been generally favorable to life insurance, and growth has progressed at a rapid rate. Some idea of this growth and the large importance of the business may be had from the following table:

**GROWTH OF LIFE INSURANCE COMPANIES
IN THE UNITED STATES***

(Millions of Dollars)

<i>Year</i>	<i>Total Assets</i>	<i>Total Insurance in Force</i>	<i>New Insur- ance Written During Year</i>
1900.....	1,742	8,561	1,846
1910.....	3,876	16,404	2,557
1920.....	7,320	42,281	10,105
1930.....	18,880	107,848	19,020
1935.....	23,216	100,730	14,139
1938.....	27,755	111,055	12,627

* *Statistical Abstract of the United States, 1939, p. 203*

The annual amount of new business written and paid for increased from \$1,846,000,000 during the year 1900 to \$12,627,000,000 in 1938. In 1900 the total amount of life insurance in force was \$8,561,000,000; and in 1938, \$111,055,000,000. When one considers this very rapid increase in the volume of business underwritten, together with the fact that modern science has substantially increased the life expectancy of the insured and that interest rates on high-grade investments have exceeded the 3 to 3½ per cent basis, it is easy to understand why the value of

the stocks of well-managed insurance companies have moved generally upward during the past. Furthermore, in view of the present rigid supervision to which stock companies are subjected in respect to all departments of their business and of the very conservative lines upon which they are run, stocks of the leading life companies must ordinarily be classed as a conservative type of investment.^a Liabilities, in so far as the present mortality

ASSETS OF LEADING LIFE INSURANCE COMPANIES IN THE
UNITED STATES: AS OF DECEMBER 31, 1930, 1938

(Millions of Dollars)

	1938		1930	
	Amount	Per Cent	Amount	Per Cent
Investments:				
Farm Mortgages.....	800	3.2	1,886	10.9
Other Mortgages.....	4,138	16.2	5,128	29.6
Total Mortgages.....	4,938	19.4	7,014	40.5
U. S. Government Bonds	4,646	18.2	303	1.8
State & Municipal Bonds.....	1,497	5.9	587	3.4
Canadian Government Bonds.....	499	2.0	404	2.3
Other Foreign Government Bonds....	7	.0	33	.2
Railroad Bonds and Stocks.....	2,969	11.6	2,947	17.0
Public Utility Bonds and Stocks....	3,277	12.9	1,675	9.7
Other Bonds and Stocks.....	1,500	5.9	547	3.1
Total Bonds and Stocks*.....	14,397	56.5	6,496	37.5
Total Investments.....	19,335	75.9	13,510	78.0
Policy Loans and Premium Notes....	3,039	11.9	2,516	14.6
Real Estate.....	1,928	7.5	411	2.4
Cash.....	704	2.8	126	.7
Other Admitted Assets.....	489	1.9	741	4.3
Total Assets.....	25,495	100.0	17,304	100.0

(Millions of Dollars)

	1938	1930
* Preferred and Guaranteed Stocks.....	411	351
Common Stocks.....	114	99
Total Stocks.....	525	450

tables and low interest rates are used in computing legal reserves, are overstated rather than understated.⁹ Assets, on the other hand, consist almost entirely of securities. A further analysis of the types of securities held by life insurance companies will

^aIn some jurisdictions regulation of investment policy has permitted speculative commitments, and consequently a check on the list of investments held by a company is important.

⁹This statement may be untrue for the annuity business, which is relatively small for most companies, but which has been somewhat unprofitable. Premium rates in this field have recently been readjusted. If interest rates continue low, the difference between the actuarial assumption and the rate earned may disappear.

show that by far the largest percentage is in bonds and mortgages. The table on page 535 shows that at the end of 1938, the leading companies in the United States had over 75 per cent of their assets in mortgages and securities.¹⁰ In 1930, investments were 78 per cent of admitted assets. Stocks make up a very small part of the investments, consisting chiefly of preferred and guaranteed issues. Common stocks constitute about one half of one per cent of total assets.¹¹ The next largest item represent loans to policyholders secured by the pledge of policies. When this amount is added in, we see that about 90 per cent of all assets were invested in the most conservative types of investment available.

Up to this point, discussion has been confined largely to the position of life insurance companies as a class. No effort has been made to treat the different bases to be used in an analysis of the relative desirability of the stock of one company as compared with another.

Investment tests, past history, and rate of growth. The first test suggested in reference to the analysis of individual companies pertains to the rate of growth experienced by the company in question. It is true that total or aggregate business underwritten by all companies has greatly increased during the past forty years, but this fact does not necessarily mean that the business of any one company has likewise increased. The volume of new business written annually, the kind of business, and the total insurance in force should be studied over a ten-year period, and the rate of growth should be at least equal to that shown for the country as a whole. There is strong presumptive evidence against a company whose new business is not showing satisfactory expansion. Such a situation may result from any of several causes. The management may not enjoy the confidence of possible insurers, costs of doing business may be so high that premium costs are excessive, the types of policies the company issues may be unsatisfactory, or the officers may not be sufficiently active in promoting sales. In any event, much of the real profit

¹⁰ Figures for forty-nine companies representing 92 per cent of assets of all United States companies. *Proceedings, Association of Life Insurance Presidents*, 1939, pp. 108-110.

¹¹ An exception to the general rule is the Sun Life Assurance Company of Canada (not included in the table), which has heavy common stock investments. For a review of its portfolio experience, see Guthmann, H. G., and Dauer, E. A., "Stocks vs. Bonds as Life Insurance Investments During Depression," *Harvard Business Review*, January, 1935, Vol. XIII, p. 237.

derived from investment in life companies results, in the final analysis, from a rapid growth in business underwritten. This increase frequently makes it necessary to obtain additional capital for the business, which is customarily acquired by increases in capital stock. Such increases are likely to result in valuable subscription rights to the stockholders of the company.

Operating tests. Another test of the policies of the management of a given company is found in the ratio of actual to expected mortality. In most companies this ratio will run between 50 and 60 per cent. Obviously the greater the care used in the selection of risks, the lower will be this ratio. The effect of a low mortality ratio on earnings has already been discussed. Closely akin to this ratio in its effect on earnings is the *net* rate earned on *mean ledger assets*. Stated somewhat less technically, we are interested in the percentage earned on investments. Whereas 3 per cent is a rate commonly assumed for actuarial purposes, most companies earn at present between $3\frac{1}{2}$ and 5 per cent. A company may be said to be successful when it earns over 4 per cent on its mean, or average, ledger assets.

The investor is likewise interested in the expenses that the company incurs. He will want to know not only the expenses incurred in the process of securing business, but also those incurred in the conduct of the business. In order to study the operating expense factor the following ratios are generally examined:

1. First-year commissions to new premiums.
2. Total first-year expenses to new premiums.
3. Total insurance expenses less first-year expenses to renewal premiums.

The reason for distinguishing between new and renewal business is that the cost of acquiring new business, because of commissions and the medical examination, makes its expense ratio much higher than that for renewal business. These ratios, and sometimes others, are ordinarily given in the various published reports of insurance companies as found either in the annual reports of various state insurance commissions or in *Best's Life Insurance Reports*.¹²

¹² It is recommended that the student refer to *Best's Life Insurance Reports*, for further explanation of the ratios discussed in the present section of this chapter. In the introductory section will be found an illuminating discussion of life insurance principles and practice. The subject is necessarily intricate and cannot be fully covered here because of the limitations of space.

Net earnings and book values. One of the most difficult aspects of analyzing life insurance company stocks is that of interpreting net earnings and the book value of assets per share of stock. With a typical industrial or public utility company, the computation of earnings and assets per share of stock is largely a matter of accounting. With the life insurance company, however, the accounting reports must be interpreted in the light of the actuarial methods employed. The figures in the gain and loss exhibit (profit and loss statement) are based upon the previously mentioned assumptions as to mortality, interest rates, and operating expenses. A gain is reported only when mortality is less, interest earnings more, or operating expenses (loading) less than assumed in making up premium rates. Two companies that assumed different interest rates might thus show different "profits" even though they both earned the same rate of return on the same amount of assets.

In the balance sheet the reserve liability is correct only in so far as: (a) the actual mortality equals expected mortality; (b) the investment earnings equal assumed rate of interest on its investments; and (c) operating expenses equal the "loading" factor in the premium. In practice, as we have seen, many companies perform better than is anticipated. As a practical matter, therefore, the Net Reserves-life account is generally in excess of what will actually be required to meet claims. A part of this account, therefore, is the equivalent of surplus, and not a real liability. Accordingly, if one computes earnings strictly on the basis just described, he is being overconservative in those years in which the reserve increases. Actual earnings will be somewhat in excess of his computations. The extent to which further additions should be made, however, is a matter of estimate and depends on the ratio of actual to expected mortality, the investment return which the company shows, and its costs of doing business. Furthermore, there will be the question of what proportion of such savings must be shared with policyholders in order to meet the pressure of competition from mutual companies which make similar gains. Because of considerable variation among companies, it is impossible to develop a formula that can be used satisfactorily for making this estimate. The net profits are the best single measure of the advantage derived from underwriting and investment activities, but it is customary to make allowance for a year in which substantial additional business is placed on the books, on the principle that special expenses

incurred in obtaining such increased business will be balanced by increased earnings if the business can be retained in subsequent years at very small expense. Similarly, the book value is expected to run substantially lower than the market or investment value, just as in the case of bank stocks.

Analysis of return on leading stocks. Because of the small number of large stock companies operating in the life insurance field, investment interest has been limited. That such stocks as were available were highly valued is apparent from the following table showing the relation of dividends, earnings, and book value to the average market price for the year 1935 to 1939 inclusive:¹³

MARKET PRICE RATIOS OF STOCKS OF LEADING NON-MUTUAL
LIFE INSURANCE COMPANIES: 1935-1939

	PER CENT OF DIVIDEND YIELD ON AVERAGE MARKET PRICE				
	1935	1936	1937	1938	1939
Aetna Life.....	2.19	5.71	4.00	2.12	2.41
Connecticut General..	2.09	3.27	2.22	1.90	2.50
Travelers.....	3.64	3.89	3.53	3.20	3.08
	PER CENT EARNED ON AVERAGE MARKET PRICE				
	1935	1936	1937	1938	1939
Aetna Life.....	5.42	8.00	1.65	10.45	6.42
Connecticut General..	17.84	15.30	3.88	10.21	9.48
Travelers.....	7.39	6.16	-1.10	6.87	2.07
	RATIO OF AVERAGE MARKET PRICE TO BOOK VALUE AT END OF YEAR				
	1935	1936	1937	1938	1939
Aetna Life.....	1.18	1.01	1.25	1.49	1.21
Connecticut General....	0.70	0.69	1.08	1.38	1.21
Travelers.....	1.43	1.56	1.92	2.29	2.60

Dividends in most years were between 2 and 3 per cent of the average market price. Earnings were higher, but they were still very low in relation to the price which an investor would have been obliged to pay for the stock, except in certain years for the Connecticut General. The ratio of market to book value has been fairly normal in recent years, tending to run somewhat above one.

An explanation of the low return may be found in the opportunity for growth in earnings at a profitable and rapid rate. Earnings in good years have frequently been in excess of 10 per cent of the stockholders' invested capital. (The interested reader may derive these percentages from the preceding tables by multiplying the percentage earned on market price by the

¹³ Compiled by Mr. Howard Berolzheimer, assistant professor in insurance, Northwestern University.

ratio of market to book value.) A substantial part of earnings was retained in the case of all of these companies, as may be seen by a comparison of the percentage earned and the percentage disbursed as dividends. Subscription rights have in the past also shown opportunities for growth. A large part of the high return can be attributed to the very high ratio of business to the net worth. Reserve liabilities to policyholders ran from ten to twenty times the stockholders' investment. Under such conditions even a small loss of assets would appear large in relation to the stockholders' equity. The fact that losses were not more substantial in years of declining security prices can be attributed to the predominance of bonds and real estate mortgages among the assets.

The assets of insurance companies consist largely of the highest type of investment securities. Their stock, therefore, represents the ownership equity in a fund ordinarily consisting of diversified and well-selected first mortgages and bonds. Furthermore, the actuarial certainty with which losses can be predicted minimizes the hazards of their type of insurance business. In the case of growing companies, there is also an opportunity for the same compounding process to operate that we observed in the case of banks. Each dollar of added investment, whether coming from earnings or from new investment, enables the company to increase its business—and consequently its earnings—many times. The chief hazard for companies after they have passed the initial stage of development lies in a speculative investment policy, a fault that has developed in a few companies organized in states with either weak legislation or inexperienced regulation. Because reserve liabilities are relatively large, generally running from ten to twenty times the stockholders' equity, investments in common stocks or speculative bonds may result in insolvency in the event of even mild business recession.

Fire insurance compared with life insurance. The business of fire insurance is similar in some respects to that of life insurance. Nevertheless there are points of dissimilarity that are fundamental to the investor. If we consider first the points of similarity, we find that the chief business of fire companies is the assumption of risks. Actuarial standards have been set up by which the company can determine what percentage of similarly located structures of a given type will burn each year, although it cannot tell which particular ones will burn. It is possible, in other words, to express mathematically the chance

of loss on any given policy. The company, of course, can afford to take such risks if it writes a sufficient number of policies, covering risks in different locations, to permit the law of averages to work. In computing the premiums necessary to cover the risks involved in their policies, fire companies likewise assume that the unused portions of their premiums will be invested. This condition results in a somewhat lower premium rate than would be necessary if their reserves were not invested.

In considering, next, points of dissimilarity, one must first take into account the length of time that fire policies normally run. Generally speaking, fire insurance policies, and such other policies as are customarily written by fire companies, run for one, three, or five years. After the expiration of the policy, no further liability attaches to the company, and the whole premium may be considered to have been earned by the company at that time, if no claims for losses have been presented to the insurance company. In theory, as well as in practice, therefore, the business of fire insurance differs basically from that of life insurance. The fire insurance company is not required to set up out of premiums the same kind of reserve against policies in force as are life companies. The former type of company, upon writing a policy, credits an unearned premium account for the entire premiums received. As the policy continues in force, a certain portion of the unearned premium is considered to have been earned. The premium is prorated evenly over the life of the policy, no compound interest assumption, such as is necessary in computing life insurance reserve liabilities, being employed. In the reports of each company will be found both the premiums collected (cash basis) and the premium income earned (the accrual basis, just described). The balance sheet will show unearned premiums as a liability.

Another point to be observed in a comparison of fire and life insurance is the much greater danger of concentrating risks in the former. A fire insurance company may have a rather large total of risks in a given city. This presents a dangerous situation, even though a proper distribution of risks is found within the city itself. At the time of the San Francisco earthquake and fire, many companies suffered very severe losses, but, owing to a distribution of business all over the country, the major companies had sufficient resources to withstand the terrific claims presented. This risk, known as the "conflagration hazard," is guarded against in part by reinsuring when too great a concen-

tration of business appears on the company's books, but it cannot be entirely eliminated. The only way a similar concentration of risk could be assumed by a life company would be to write a very large policy on the life of one man. A life insurance company can also protect itself by reinsuring with other companies a part of its risk, in an effort properly to adjust its individual risk to the total volume of business on its books.

Investment status of fire insurance stocks. Despite these points of dissimilarity, the stocks of well-managed fire insurance companies present attractive opportunities, for many of the reasons that were set forth in the discussion of the investment merit of life insurance stocks. The business of fire insurance is basic, and its growth keeps pace with the increase in material wealth. Well-established companies participate in this growth and are able to handle an increasing amount of business annually with surplus earnings reinvested in the business. Where the company's business grows so rapidly that it cannot be adequately handled on the basis of its growing surplus account, additional funds are generally acquired by the issuance of common stock to present stockholders at a price below the current market price, thus creating for such stockholders valuable subscription rights.

Whereas life companies invest chiefly in mortgages and bonds, fire companies invest chiefly in bonds and stocks. Two reasons for this difference in investment policy may be given. In the first place, the shorter life of the fire company contract and the possibility of a conflagration loss have made it desirable to concentrate on marketable investments, a policy which excludes mortgages. In the second place, the larger net worth (relative to liabilities) of the fire companies has made it possible for them to purchase some common stocks in spite of their fluctuating value. The investments that may be made by fire insurance companies are frequently restricted by the states in which they do business, but the company is usually given a much wider choice than is allowed the life company. Where the officers of the fire insurance company are capable, however, this situation is likely to operate to the advantage of its stockholders, for it is possible, in view of the wider latitude given, to increase the average yield on funds invested. In fact, some of the leading fire companies have made substantial profits through the purchase and sale of securities and the appreciation of common stockholdings.

Investment analysis: age and rate of growth. Our next task will be to develop a technique that may be applied in testing the desirability of the stock of one company as compared with that of another. In this connection the matters of age and past rate of growth should be considered. Other things being equal, the older companies are the more desirable. The reason is that the longer a company has been in business, the wider its distribution of risks is likely to be. Likewise, each added year of operation finds a company with able management more firmly entrenched in respect to both finances and prestige. The more widely known a company is, the lower will be the cost of securing new business. Rate of growth is an important factor to consider in view of the fact that it is the rapidly growing company that offers the greatest opportunities for increasing earnings and valuable subscription rights, or possible stock dividends.

Comparison of capital and surplus with volume of business. The combined surplus and capital account of the company represents the excess of admitted assets over all liabilities and measures the stockholders' investment in the business. The amount of this item in relation to combined liabilities constitutes a safety factor for the policyholders. For purposes of analysis, the capital and surplus may be compared with the unearned premium account, rather than with total liabilities, in order to simplify matters, because the unearned premium account represents the bulk of the liabilities. Where there are large unpaid losses, however, such a method is not entirely accurate. The average combined capital and surplus accounts of leading fire companies will normally exceed the unearned premium reserves by a substantial margin, as shown by the table on page 544.¹⁴

Unearned premium reserve. The nature of the liability for unearned premiums has already been explained as the proportionate part of any premiums for which the period of coverage has not expired. Legally, this amount is the sum the company would be obliged to return to the policyholder if it elected to cancel the policy. Practically, however, the amount is in excess of the sum the company will ordinarily need to carry out the contract. The reason is that the operating expenses are not spread evenly throughout the life of the policy. Most of the expenses, such as the salesman's commission and the cost of inspecting the risk and issuing the policy, are incurred at the

¹⁴Compiled from *Best's Insurance Reports*, "Fire and Marine," 1940.

time the policy is written. Once the policy has been written, the chief costs are the actual fire losses and the expense of adjusting claims arising therefrom. In practice, the losses incurred will ordinarily run less than 60 per cent of the premiums, and it has become customary to regard about 40 per cent of this liability reserve as being the equivalent of surplus. If a company that was reasonably well managed were being liquidated, it would not find it necessary to cancel its policies but could

COMBINED CAPITAL AND SURPLUS AND UNEARNED PREMIUM
RESERVE OF LEADING STOCK FIRE INSURANCE COMPANIES
IN THE UNITED STATES: DECEMBER 31, 1939

(Thousands of Dollars)

<i>Company</i>	<i>Capital Stock and Surplus</i>	<i>Unearned Premium Reserve</i>
Aetna Insurance Co.	31,590	19,708
Continental Insurance Co.	72,033	19,679
Fidelity-Phenix Fire Insurance Co.	56,074	15,451
Fireman's Fund Insurance Co.	24,607	12,757
Great American Insurance Co.	33,831	13,147
Hartford Fire Insurance Co.	74,776	33,868
Home Insurance Co.	65,372	48,051
Insurance Co. of North America.	78,269	21,621
National Fire Insurance Co. of Hartford.	33,915	15,102
Phoenix Insurance Co.	52,662	8,726
Totals.	523,129	208,110

reinsure its risks for an amount substantially less than its unearned premium liability.

Ratio of losses incurred to premiums earned. To estimate more accurately the benefit that the company will derive from its earned premiums, it is necessary to consider the ratio of losses incurred to premiums earned. The significance of this ratio becomes clear if we consider that the premium income of a fire insurance company is not all earned in the year in which it is paid, for the reason that premiums are required to be paid in advance. Premiums earned represent that portion of the premiums which expires during the fiscal year, a substantial part of which will have been collected in preceding years. Losses, on the other hand, represent the actual amount of losses reported during the year. If, therefore, one compares the losses incurred to premiums earned, he has an excellent index of the true loss experience of the company during the period covered.

Ratio of underwriting expense to premiums collected. A further comparison is necessary, however, before the complete picture is available. Every company has its overhead, or operating, expenses, which consist of such items as commissions, rent, salaries, and taxes. These are generally grouped under the heading "Underwriting Expenses." Such expenses are usually studied as a ratio, or percentage, of the premiums earned, and therefore, in connection with the "loss ratio" already mentioned, they tell what remains in the way of profit from the premium income. Because so much of the expense is connected with the acquisition of the business, some believe that a fairer measure of the operating efficiency, as distinguished from fire loss experience, is the ratio of expenses to premiums *collected* rather than the ratio of expenses to premiums *earned*. Generally speaking, a company may be said to be reasonably successful if it can keep its losses and underwriting expenses within 100 per cent of its earned premiums, thus leaving its net investment earnings free for its stockholders.

Net earnings and book value per share. We are now ready to consider methods for computing the net earnings of fire insurance companies and book value per share of stock. The income account, or statement of operations, of the company will show three sources of loss and gain: (1) gain (or loss) from underwriting, consisting of premiums earned less losses and underwriting expenses; (2) net income from investments, consisting of interest, dividends, and rents less any investment expenses; and (3) profit (or loss) on the investment account which may be the result of the sale of securities and of unrealized amounts of loss or gain owing to changes in the market value of investments. The third group of items may be regarded as unusual or as "capital" gains and losses, and may be eliminated for some statistical purposes. Because of the "hidden surplus" element in the unearned premiums liability, a further adjustment is sometimes made in the reported earnings by adding 40 per cent of any net increase (or subtracting any such decrease) in the unearned premiums to the earnings shown. Such an adjustment is particularly helpful in interpreting results in years during which the liability has changed greatly.

The liquidating value of a fire insurance stock may be estimated by adding 40 per cent of the unearned premium reserve to the book value of the stock (that is, to the sum of the capital

INSURANCE COMPANY OF NORTH AMERICA—BALANCE SHEET, DECEMBER 31, 1939*

		<i>Admitted Assets</i>		<i>Liabilities</i>	
Real Estate:				Uncearned Premiums:	
Cost.....				Fire.....	\$ 16,083,959
Carried at.....				Other.....	5,586,977
Mortgages.....					
Bonds:				Total.....	\$ 21,620,936
Cost.....				Perpetual Deposits.....	885,054
Amortized Value.....				Net Unpaid Claims.....	5,722,059
Stocks:				Est. Claim Expense.....	343,400
Cost.....				Dividends to Stockholders.....	1,800,000
Market Value.....				Salaries, Rents, etc.....	44,500
Cash.....				Taxes.....	1,364,900
Premiums:				Contingent Commissions.....	380,000
Outstanding.....				Unauthorized Reinsurance:	
Not Overdue.....				Premiums.....	235,884
Accrued Interest.....				Losses.....	455,278
Bills Receivable.....					
Reinsurance Recoverable.....				Total Liabilities.....	\$ 32,852,011
Cash Deposit Mexico.....				Capital Paid Up.....	12,000,000
Adj. Canadian balances.....				Net Surplus.....	65,269,141
Miscellaneous.....				Special Reserves.....	1,000,000
Assets (statement).....				Total.....	\$111,121,152
Assets (market).....				Policyholders' Surplus (statement).....	78,269,141
				Policyholders' Surplus (market).....	79,792,578

(Figures in parentheses are memoranda and not in totals.)
 * *Best's Insurance Reports*, "Fire and Marine", 1940, page 354.

Ratios

Underwriting:	1937	1938	1939
Loss and Adjusting Expenses to Earned Premiums.....	43.2%	42.6%	42.7%
Expenses Incurred to Premiums Written.....	51.4	52.8	50.4
Combined Loss and Expense Ratio.....	94.6	95.4	93.1

UNDERWRITING EXHIBIT, 1939

<i>Gains:</i>		<i>Losses:</i>	
Premiums Earned.....	\$24,081,775	Losses Incurred	\$ 9,644,148
		Adjustment Expenses Inc'd.....	759,317
		Underwriting Exp. Inc'd.....	12,601,548
		Profit and Loss Items.....	74,352
		Underwriting Profit.....	1,002,410
Total.....	<u>\$24,081,775</u>	Total.....	<u>\$24,081,775</u>

INVESTMENT EXHIBIT, 1939

<i>Gains:</i>		<i>Losses:</i>	
Investment Income.....	\$ 4,385,017	Investment Expense Incurred.....	\$ 744,557
Sales.....	346,733	Sales.....	171,003
Increased Market Values.....	2,731,063	Decreased Book Values.....	165,773
		Net Gain.....	6,381,880
Total.....	<u>\$ 7,463,813</u>	Total.....	<u>\$ 7,463,813</u>

stock and surplus).¹⁵ Per share figures are obtainable by dividing results by the number of shares outstanding.

Analysis of Insurance Company of North America. It is possible to make the preceding analysis for almost any fire company in the United States on the basis of reports published by the insurance commissioners of the various states, particularly of New York, Massachusetts, and Connecticut, or from *Best's Insurance Reports*, "Fire and Marine" volume, or *Moody's Manual of Investments*, "Banks and Finance" volume, or the *Insurance Yearbook*, "Fire and Marine" volume. The illustrative material shown on pages 546 and 547 indicates how reports of this type ordinarily appear.¹⁶

On the basis of this material, we may now compute net earnings in accordance with the method previously recommended. Premiums earned in 1939 were \$24,081,775, while underwriting expenses were \$12,601,548, losses incurred \$9,644,148, loss adjustment expenses incurred \$759,317, and profit and loss items \$74,352. There was, therefore, a net underwriting profit of \$1,002,410. From the "Investment Exhibit", on the other hand, it appears that investment profit amounted to \$6,381,880. Adding to this amount the underwriting profit, a total net profit of \$7,384,290, is shown. There were outstanding, as of December 31, 1939, 1,200,000 shares of stock. Net earnings per share for the year 1939 were, therefore, \$6.15. The total book value of proprietorship equity may be computed as follows: paid-in capital and surplus were \$78,269,141, to which is added 40 per cent of unearned premiums, or \$8,648,374, to make a total of \$86,917,515 for "liquidating" value. This amount is equivalent to \$72.43 per share.

A study of thirty major stock fire insurance companies showed that income is about as variable from year to year as it is for industrial companies. Underwriting profits show a strong correlation with business activity, rising in good times, falling in depression. The fluctuations in reported earnings are accentuated by the practice of carrying stock investments at their market value in the balance sheet and showing any adjustment in valuation in the investment income exhibit. The market price of the insurance company's own outstanding stock shows a more consistent relation with liquidating value than with the

¹⁵ If investments are carried at less than their market value, a further adjustment may be made.

¹⁶ *Best's Insurance Reports*, "Fire and Marine," 1940, pp. 354-358.

earnings and dividends. Insurance stocks rose with the general stock market and in 1928 sold on the average at about 1.6 times liquidating value; for the year 1932 the ratio fell to 0.7; since the year 1934, the ratio has been substantially 1.0.¹⁷

Stocks of companies engaged in the property insurance field have received particular attention since the growth in popularity of common stocks in the 1920's. Because a substantial share of the profits of these companies was derived from investment income including dividends, the companies were regarded as a kind of investment trust. They had the advantage over the generally newer investment trusts in that they possessed a record for a period of years, which made possible a rational estimate of investment quality.

The fire insurance companies were able to go through the depression period with but one large company in serious difficulties; and that company was subsequently reinstated. Out of about fifty casualty insurance companies, however, almost one half, as a result of heavy underwriting losses, went into the hands of their respective state insurance departments. Fire companies were reported to have found it necessary in some instances to give financial aid to their casualty insurance subsidiaries. The types of business causing the heaviest losses were: (1) guaranty of mortgages; (2) workmen's compensation; (3) surety bonds on bank deposits in 1930-1932; and (4) fidelity and surety bonds in 1930-1932.¹⁸ When business becomes more normal, property insurance companies generally should operate under more favorable conditions and should see a return of their stocks to favor. Two points are clear, however: first, that investments can be made safely in this field only after careful study; and second, that both underwriting and investment results should be examined over a period sufficiently long to reveal the effect of bad, as well as good, times.

¹⁷ Van Dusen, Edgar A., "Further Gains for Insurance Companies," *Barron's*, February 12, 1940, p. 18.

¹⁸ Abbot, Henry W., "Insurance Stocks in Favor Again," *Barron's*, June 17, 1935.

Financial Institutions—Investment Trusts

Definition of investment trusts. Investment trusts may be defined as financial institutions organized for the purpose of enabling the individual investor to obtain the advantages of wide diversification in a single commitment. The principal business of the trust is the investment of funds in a varied list of stocks and bonds. The capital obligations of the trust, or company, representing participation in the assets held, therefore, offer to the small investor a distribution of his investment risks which would be otherwise impossible. Investment trusts differ from holding companies in that the latter are usually formed for the purpose of acquiring managerial control over one or more operating companies, while the former purchase securities solely as investments.

Origin and development of investment trusts. The investment trust, while comparatively new in this country, has long been known in Europe. The first investment trust seems to have been founded in Belgium in 1822.¹ In 1860 the first Scottish investment trust was set up. At this time British bonds were selling to yield only a 3 per cent return, whereas, foreign government bonds were yielding from 5 to 6 per cent. Scottish investors were impressed with the higher return on foreign bonds, but did not care to assume the risk of losing all their capital by committing it to one foreign investment. The investment trust was formed in order to diversify this risk.

These early institutions were created under a legal form known as the Old English Trust. A few people who had had wide

¹ *Federal Reserve Bulletin*, January, 1921, Vol. 7, p. 64.

experience in the management of large trust estates were appointed trustees, and capital was intrusted to them for the purpose of acquiring securities. The individual members of the trust received shares therein according to the capital invested. In the event of oversubscription to the capital of the first trust, second, third, and fourth trusts might be formed under the same management and by-laws as the first. In each case, however, the management followed the basic principle of diversifying the securities purchased for the trust account. The typical London and Edinburgh trusts, as distinguished from the financial company to be described later, have the following characteristics:²

1. They raise capital by issuing debentures and preferred and common shares. The preferred and common shares are generally sold together in the form of £10 share certificates which, when fully paid for, are converted into preferred and common stock in the ratio of 60 per cent to 40 per cent, or 50 per cent to 50 per cent.

2. They invest their funds in a large variety of securities of both foreign and domestic origin, in order that the law of averages may operate in protecting the principal and the income.

3. They limit their investment in any one security, so that no responsibilities of management are incurred.

4. They supervise the investment fund continuously much as any conscientious trustee having discretionary powers.

5. They endeavor to earn a return higher than that ordinarily received on other investments of comparable safety. This is accomplished through:

- (a) The favorable average interest and dividend yield which the trust gets through careful selection and purchase of securities, and which tends to be higher than could be obtained with equal safety if the capital were not sufficient for considerable diversification.

- (b) Cash investment profits which are the result of managerial skill.

- (c) The proper investment of the continuous accumulation of earned reserves and surplus, built up consistently year by

²See Ottinger, A., and Shea, T. J., *Investment Trusts—A Survey of the Activities and Forms of Investment Trusts with Recommendations for Statutory Regulation by the New York State Department of Law, Bureau of Securities, 1927*, p. 7. (This publication will subsequently be referred to as *Investment Trusts—N. Y. Report*.)

year from net income, resulting in great part from the between the fixed cost in capital obtained through i of bonds or preferred shares and the actual earnings n investment and reinvestment of its capital.

The development of the investment trust in England not spectacular during the later part of the nineteenth c was steady. By 1886 there were 12 such trusts, with a of £6,500,000, whose securities were listed on the Lond change.³ By 1890 it is estimated that, there were betw and 60 such trusts in Edinburgh and London. Altho growth in these institutions was less rapid after 1890, ne less, from 25 to 30 investment trusts were organized b 1890 and 1913, and it is estimated that, in 1931, there w or more such companies, with total paid-in capital assets £225,000,000.⁴

The success of British trusts is attributable in large management. The directors of these trusts are generally wide discretionary powers. They may sell securities fro portfolio in order to avoid losses. Frequently there are strictions imposed with reference to the *type* of securit may be purchased, except that securities which place u liability on the trust may not be purchased. However, di are generally prevented from investing more than a stat centage (usually 10) of the capital of the trust in a security. In this way wide diversification has been obtain study of the management of these trusts shows that se have been selected judiciously, that expenses have bee down, and that conservative dividend policies have bee lowed, thus permitting the accumulation of reserves f purpose of taking care of losses.⁵

In Great Britain, the term "financial company" is re for the investment company that specializes in the sh a particular type of undertaking. Much foreign, com and industrial financing is undertaken in Europe throug ment companies that specialize in the shares of rubber, oil ping, mining, electric light and power, and railway undert Companies of this nature are known as financial compa

³ *Federal Reserve Bulletin*, November, 1920, Vol. 6, p. 1170.

⁴ Keane, C. P., *Manual of Investment Trusts* (London: George Rout Sons, Ltd., 1931), pp. 1679-1687.

⁵ Campbell, Edward M., "Management Problems of Investment Trust vard Business Review, April, 1924, Vol. 2, p. 298.

financial trusts. At the close of 1927, it was estimated that there were at least 150 such companies with a total paid-in capital in excess of £200,000,000.⁶

American investment trusts. It was but comparatively recently that the investment trust appeared in the United States. Prior to World War I there were several companies and funds in this country having some of the characteristics of the British trust, but the investment trust movement was not developed until after the war. The year 1924 witnessed a substantial expansion in the movement, which rose to a high point in the period 1927-1930.⁷ So rapid was the growth, that the number of trusts was estimated to have exceeded 1,000 and had assets of more than \$7,000,000,000 in 1929. These assets shrank to \$2,800,000,000 in 1932. By 1940 fewer than 600 trusts survived.⁸ Besides the obvious explanation that these values were based on stock market quotations, which shrank tremendously during this period, further shrinkage was due to the retirement of securities by some trusts, complete liquidation of others, and mergers. These companies rose with the popularity of common stocks, which they so largely invested in, and a plethora of funds for both investment and speculation. They declined with the fall of common stocks, and the disappointing record of investment management in this field.

Fixed trusts. Investment trusts in this country may be classified in a number of ways, but from the investor's point of view an important basis of classification is the degree of discretion allowed the managers: the fixed, or limited management, trust; and the management, or discretionary, trust.⁹ The former,

⁶ *Investment Trusts—N. Y. Report*, p. 7.

⁷ The first investment trust in this country to follow the British type was the International Securities Trust of America, formed in 1921. Under Section 25(a) of the Federal Reserve Act, popularly known as the Edge Act, it is possible to form companies doing essentially an investment business. The only investment company so far formed is The First Federal Foreign Trust (*Investment Trust—N. Y. Report*, p. 31). Several investment companies of the acceptance type, however, were also formed. See Steiner, Wm. H., *Investment Trusts* (New York: Adelphi Co., 1929), Chapter III.

⁸ *Time*, March 25, 1940, p. 82.

⁹ The face amount installment certificate is not discussed here because it represents an accumulation for a definite amount much like the face amount of a life insurance policy. It is roughly comparable to the installment stock of the savings and loan association. Installment investment plans are also omitted since they are merely a method for the purchase of investment trust shares. The collection of the installment payments typically involves extra costs for the investor. For fuller discussion and critical analysis see the report of the Securities

sometimes known as the unit investment trust, is the simpler type and will be discussed first. "It offers a fixed list of securities, either stocks or bonds, which are assigned to a trustee for safe-keeping, and against which certificates are issued. In this way the investor knows definitely what his commitment consists of, and he need not rely upon the judgment and integrity of the management to so great an extent as he does in the discretionary trust. The list of deposited securities almost invariably consists of common stocks which are popular and well-known at the time the trust is formed. As trust shares are sold, the proceeds are invested in these common stocks in the specified fixed proportions. The price of the former is determined from day to day upon the basis of the market price of the deposited stocks.

An example of this type of trust is that operated by the Cumulative Shares Corporation. This corporation issues certificates payable to bearer, or registerable, which carry ownership in a group of common stocks deposited with a trustee. The certificate which is issued to the investor is found in Appendix "B" of the trust agreement and is reproduced here. The bearer form is unusual in American corporation practice outside the fixed trust field.

UNITED STATES OF AMERICA

CUMULATIVE SHARES CORPORATION

(Incorporated under the Laws of New York)

Certificate No. Number of Shares.

BEARER CERTIFICATE

FOR

CUMULATIVE TRUST SHARES

THE BANK OF AMERICA NATIONAL ASSOCIATION, Trustee

THIS CERTIFIES that the bearer hereof, or if registered, the registered owner hereof, is the owner of . . . Cumulative Trust Shares. Each such share represents an equal undivided equitable interest in the property held by the above named Trustee and is equivalent to a fifty-thousandth (1/50,000th) part of (1) a Stock Unit, consisting of the shares of the common stock of the companies shown in the legends appearing on the reverse hereof

and Exchange Commission on *Investment Trusts and Investment Companies*: Vol. I. The Origin, Scope and Conduct of the Study, Nature, and Classification of Investment Trusts and Investment Companies, and the Origin of the Investment Trust and the Investment Company Movement in the United States. 75th Cong., 3d Sess., House Doc. 707 (1939). Vol. III. Companies Sponsoring Installment Investment Plans. 76th Cong., 2d Sess., House Doc. 452 (1940). Vol. V. A Report on Companies Issuing Face Amount Installment Certificates. 76th Cong., 3d Sess., House Doc. 659 (1939) i.e. 1940.

as of the date therein specified, to which legends reference is hereby made; and (2) the proportion of any other property and/or cash applicable to a Stock Unit. All property held by the Trustee is in trust for the benefit of the holders of this and other Certificates in accordance with the terms of the Trust Agreement hereinafter mentioned.

The common stocks, and the amount of each, comprising the stock unit on September 19, 1930, are listed in Appendix "A" of the trust agreement. The same list appears on the back of each certificate. Furthermore, the back of each certificate contains the following:

Said list may have been changed since said date, and may be changed in the future, by the inclusion of additional shares of the common stock of the companies named and/or by the addition of entirely new items, and items thereof may have been, and may be in the future, wholly or partially eliminated, all by reason of events described in the Agreement referred to on the face of this Certificate to which Agreement reference is hereby made.

Upon inquiry, the Trustee will at any time supply a current list.

The remainder of the certificate contains a description of the rights of the certificate holders to participate in the cash dividends received by the trustee, as well as the net cash proceeds from the sale of any stock dividends, subscription rights, securities, or any other property received by the trustee in respect of the stocks deposited under the agreement. Such proceeds are paid by the trustee upon presentation of semiannual coupons. The certificate holder also has the right to deposit 500 certificates, or a multiple thereof, under certain conditions as to time and notice, and to receive the actual shares of stock represented by that number of certificates. Attached to all certificates are dividend coupons representing the semiannual dividends payable on the certificates.

The trust agreement sets forth the provisions regarding the deposit of property with the trustee, the issuance of certificates, the administration of deposited property, the distribution of "currently distributable funds" and semiannual dividends, the termination of the trust, the final distribution of the deposited property, the market value, and the trustee and depositor.

Investment qualities of fixed trust: advantages. To the investor the outstanding appeal of the fixed trust is that of diversification. Two varieties have been offered. Some trusts, especially in the early days, offered a fund made up wholly of the common stocks of a single industry, such as railroads, insurance, oil, or chain stores. More popular has been the fund in-

cluding a variety of companies which are widely and favorably known.¹⁰

Disadvantages of fixed trust: high costs. The two major disadvantages of this type of trust which the investor needs to weigh are: (1) the price paid for this indirect diversification; and (2) the inflexibility of the securities chosen.

With regard to the cost factor, fixed trusts have shown an addition of from 7 to 20 per cent to the current market value of the securities in the fund in setting the price at which the trust shares were sold to the public. In the majority of cases the spread has probably been somewhere between 8 and 10 per cent. Most of this margin represented the cost of selling—that is, commission to the salesman and profit to the distributing group. Other expenses would arise from brokerage commissions, office expense, and fees for the depository trustee. Some expense might also result later from the cost of operating the trust; this would constitute a charge against income. It should be noted, however, that the buyer of common stocks who purchases in very small units will find that the minimum commission plus the odd-lot fee will constitute a substantial percentage of the cost.

Abuses have arisen which have made it possible for the distributors of fixed trust shares to profit from operations involving the purchase or sale of securities for the trust fund. In an investigation conducted through the office of the attorney general of New York, the following weaknesses were suggested as common to deeds of trust under which fixed trusts operate:¹¹

1. There is inadequate protection for the certificate holder against the making of profits by the depositor corporation by putting securities into the trust fund at a higher price than these securities cost the depositor corporation.

2. There is no protection to the public in most trust agreements or indentures of the rigid, or quasi-rigid, type against an unwarranted spread

¹⁰ For a portfolio study of ninety-four fixed trusts, see *Dun's Review*, July 11, 1931, pp. 10-11, 27-28. Over 70 per cent of these trusts owned stock in N. Y. Central, American Telephone & Telegraph, Pennsylvania Railroad, Atchison, Topeka & Santa Fe, Consolidated Gas (N. Y.), Union Pacific, U. S. Steel, General Electric, and Du Pont de Nemours (listed in order of popularity).

¹¹ *Investment Trusts*—N. Y. Report, p. 45 ff. Although fixed trusts are not listed, the New York Stock Exchange requires that before a member may be associated with the organization, management, or distribution of its securities, such trust must submit certain information and agree to certain requirements of sound practice. *Commercial and Financial Chronicle*, May 16, 1931, pp. 3649-3651.

between the market value of securities deposited in the unit and the price at which the participating certificates are currently issued to the public.

3. In several indentures the depositor corporation is given the initial right to buy securities deposited in the fund held with the trustee, the latter's power to obtain the best possible price on the market being accordingly circumscribed to the probable disadvantage of the shareholders.

The enactment of the Investment Company Act of 1940 is expected to remedy the gross abuses of this form of organization. The general provisions of the act forbid that those controlling the trust use their position for personal profit. Specific rules covering the unit (or fixed) trust require a bank of specified minimum size as an independent trustee to act as custodian of all property and funds to be bound by a suitable trust agreement.

Fixed trust inflexibility. A considerable part of the popularity of the fixed feature has been due to the interest in common stocks and the suspicion with which discretionary trusts have been regarded because of abuses of management. (These will be described later in this chapter.) The weakness of a fixed investment in particular stocks soon became evident, however. Many trusts formed at the end of the decade of the 1920's selected their holdings on the basis of a long and favorable dividend record. As a result, railroad and oil stocks were popular. However, these companies suffered drastic reductions of net profits in the years immediately following, and for this reason the distributors of trust shares formed new units to include those common stocks which succeeded their former choices in popularity.

To meet this objectionable feature, provisions were added to most of the later trust agreements permitting stocks to be dropped, or sometimes permitting new stocks to be substituted for old. Thus, a stock might be sold if its dividend were discontinued and the proceeds of the sale distributed among the shareholders. Where a substitution provision was adopted, it was usually deemed necessary to provide safeguards with respect to the conditions under which the change might be made as well as to the kinds of stocks which might be substituted. These restrictions were in some cases so elaborate as to make it extremely probable that a substitution would be possible only after the stock had so changed in standing that it would have depreciated substantially in price. Those trusts which have the power of substitution are sometimes called "limited management," or "semifixed" trusts.

Poor marketability of fixed trust stock. In addition to the disadvantages of cost and inflexibility, the stock of a fixed trust may suffer from poor marketability. Since these shares are commonly unlisted, their market depends upon the sponsorship of the distributing houses. Should they lose interest in maintaining a market, or go out of business, the holder may find it difficult to liquidate his holdings at a reasonable figure. Protection against such a situation may be afforded in part by suitable provisions permitting conversion of trust shares into the underlying stock when presented in suitable multiples, or by provision for liquidation of underlying shares into cash without too great a burden from commissions and fees.¹²

Management investment trusts. In contrast with the fixed trust is the trust which gives the directors or trustees wide latitude both in the original selection of, and in later substitutions in, the investment portfolio. There are three types of such trusts: (1) the mutual investment association; (2) the management trust with a capital structure consisting solely of one class of stock; and (3) the management trust with two or more classes of securities outstanding. The first two types are generally similar in that both are discretionary and issue only common stock. The "mutual" trust is different in being "open end," that is, it maintains a continuous offer both to sell and to repurchase its shares at prices based on the market value of its portfolio. For this reason, its shares are not listed on any exchange. It also generally engages outside investment counsel at a specific rate of compensation (usually one-half per cent per annum of total assets at market value) instead of hiring its own staff. On the theory that the mutual trust is a mere conduit through which income passes from the taxed corporation to the taxed investor, it is exempted from the Federal corporation income tax. To qualify for exemption the trust must distribute at least 90 per cent of its net income in dividends. (For other qualifying requirements as to character of operations, limitation on speculative profits, diversification, and capital structure, see the Federal Revenue Act.) The ordinary management trust derives its operating funds from the sale of blocks of its own

¹²For further description, see Marshall D. Ketchum, *The Fixed Investment Trust*, in *Studies in Business Administration*, published by the *Journal of Business* of the University of Chicago, Vol. VII, No. 3, 1937. Also see Report on *Investment Trusts and Investment Companies*, Vol. IV, "A Report on Fixed and Semi-fixed Investment Trusts," 76th Cong., 3d Sess., House Doc. 567 (1940).

securities at irregular intervals. Many management trusts have issued no securities other than those sold at the time of their original financing.

We shall first discuss the trust that secures all of its capital by the sale of shares of common stock. Such trusts are really nothing more or less than joint investment ventures under the management of a group of directors or trustees, each shareholder being entitled to his pro rata share in the fund.

The advantage of this type of capital set-up lies in the absence of fixed charges, which result from the issuance of bonds, or of contingent but prior charges, which result from the presence of preferred stocks. This simple structure means greater investment safety but lacks the speculative glamour which may be had by "trading on equity." If the trust were able to earn on its invested capital at a rate in excess of the fixed charges incurred by the issuance of bonds or preferred stocks, then it should prove profitable for the stockholders to trade on their equity by issuing fixed-income-bearing securities. One of the reasons why European investment trusts issue debentures is that excess earning power, over and above the fixed costs of capital obtained at comparatively low rates, makes possible more liberal appropriations to reserves and surplus than can be made when only common stock is issued. Up to the present, American trusts have not had sufficient investment prestige to permit their issuing bonds and preferred stocks at rates that would be profitable, unless the proceeds were invested in common stocks in a period favorable to appreciation.

Management investment trusts issuing several types of securities. The majority of American trusts of the management type have nevertheless raised their capital by the sale of preferred shares and bonds, as well as common stock. Furthermore, the bonds of investment trusts in this country, as abroad, are not generally secured by the deposit of collateral, but are in the form of debentures, which constitute only an unsecured claim against the assets of the trust. The reason for this situation lies in the added expense occasioned by frequent changes in the collateral held under the deed of trust. Such substitutions in collateral are obviously made necessary by the very nature of the trust's business.

In British practice, debenture stock—that is, debt capital or bonds—is ordinarily limited by the articles of association to an amount not exceeding the outstanding share capital. Robinson

states that fifty per cent is a common limitation, and cites one case of a limitation to one third of the fully paid capital.¹³ Even in the absence of any surplus, the lowest of these standards would result in assets of twice the debt, while the common limitation of fifty per cent of capital would be equivalent to requiring assets equal to three times the debt. American debentures of the better-managed trusts offer about the same security. Where the debentures are accorded a convertible feature, or where they are issued with common stock or warrants, they are often secured by a lower proportionate book value. Attention should be given to the kind, as well as the amount, of the investments behind an issue of debentures.

Under the Investment Company Act of 1940 bonds must be able to show a coverage of three dollars of assets for every dollar of liability at the time of issuance, and common dividends must not be paid that will bring assets below this coverage ratio. Preferred dividends must not reduce the coverage below 200 per cent. Future indentures must give bondholders the right to elect a majority of directors if the coverage falls below 100 per cent for twelve consecutive months. Preferred stock is required to have a 200 per cent minimum coverage upon issuance, and common dividends must not be allowed to bring the coverage below this figure. Whenever dividends are as much as two years in arrears, the preferred stockholders must be allowed to elect a majority of directors, subject to the rights of bondholders. In the future, an investment company will be limited to a single bond and single preferred stock in its capital structure, but either may be open end and issuable in series.

Legal forms assumed by American investment trusts. American investment trusts may be organized either as corporations or as "express trusts." In spite of their name, which implies a trust form of organization, the majority of the large and well-known management trusts operate as corporations, frequently incorporating in Maryland or Delaware, although there are a number formed under the laws of New York. Delaware allows the trust wide latitude in the kinds of business that may be undertaken, has low corporate taxes, and permits meetings of both stockholders and directors to be held outside the state.

In view of this common use of the corporate form of organiza-

¹³ Robinson, Leland R., *Investment Trust Organization and Management* (New York: Ronald Press Co., 1926), p. 51.

tion and the usual association in the public mind of the word "trust" with a fund restricted to conservative investments in bonds and mortgages, the term "investment company" would be more appropriate usage than "investment trust."

Restrictions regarding trust investments. The success or failure of a given investment trust will depend in large measure on the character of its management. Sometimes restrictions of varying degree may be imposed on the directors or trustees. These may be found in the corporate charter or by-laws, if the trust is incorporated; or they may be found in the deed of trust or articles of association, if the fund is organized as a voluntary association.

The Allied International Investing Corporation, organized under the Delaware laws, may serve as an illustration of a trust with very few investment restrictions. Its charter after describing the powers of the corporation in very broad terms proceeds to stress the wide discretionary powers permitted in the following provisions: ¹⁴

It being expressly intended that this Corporation may engage in enterprises or make investments or reinvestments of a nature which may be deemed speculative or hazardous, and that some one or more of its officers or directors may be personally interested, either directly or indirectly, in such enterprises and transactions, and that this Corporation may buy from, sell, or deal with, its directors or officers in their individual capacity, or with corporations, firms or associations in which this Corporation's officers and directors are interested, either directly or indirectly, no director or officer shall be liable to this Corporation or to any stockholder or creditor of this Corporation, for any error or mistake in judgment, or for any matter or thing whatsoever, except affirmative bad faith, nor for any profit realized by him or them, directly or indirectly, from transactions between this Corporation and its officers or directors, or between this Corporation and the corporations, firms and associations in which this Corporation's officers or directors are interested.

Somewhat more rigid are the provisions imposed on the board of directors in the by-laws of the former International Securities Corporation of America.

SECTION 17. RESTRICTIONS ON POWERS OF DIRECTORS AS TO INVESTMENTS.—The Board of Directors shall have the power to adopt, change, alter, amend and rescind rules and regulations from time to time, additional to those hereinafter in this section set forth, as to the investment of the funds of the Corporation; and upon the adoption of such rules and regulations, funds of the Corporation shall not be invested by the Board of

¹⁴ Quoted from the certificate of incorporation.

Directors or officers or employees of the Corporation except in accordance therewith, provided, however, that nothing herein contained shall be construed to prohibit the Corporation from issuing its shares in exchange for shares of an existing investment trust or to purchase the assets of such an existing trust. The following rules and regulations shall control the Board with reference to securities:

(a) Reliable information shall be obtainable with respect to the history, management, assets, earnings and expenses of the governmental authority, corporation or organization issuing such securities;

(b) The history of the nation or country in which such securities shall have originated must show financial stability and recognition of private property rights;

(c) The governmental authority, corporation or organization and/or their predecessors (except the predecessors of governmental authority) issuing or guaranteeing such securities must have been established for a period of at least four (4) years prior to such investment;

(d) Of the total funds of the Corporation invested and available for investment by the Board of Directors, not more than seventy per cent (70%) may be invested at any one time in securities originating in the United States of America, not more than fifty-five per cent (55%) may be invested at any one time in securities originating in England, and not more than thirty-five per cent (35%) may be invested at any one time in securities originating in any other one nation or country. Not more than ten per cent (10%) of the total funds of the Corporation may be invested in securities representing any one distinct class of business or industry. Not more than one and three-fourths per cent ($1\frac{3}{4}\%$) of the total funds which may be so invested in securities may be invested in any one such security other than governmental securities;

(e) The funds of the Corporation when invested shall be distributed among at least 400 seasoned marketable securities.

In selecting securities for purchase in accordance with the foregoing restrictions, the Board of Directors shall exercise their own discretion and judgment and shall be entitled to rely upon information believed by them to be reliable, and in no event shall they be liable or responsible in any manner to anyone for so doing.

SECTION 18. SALE OF INELIGIBLE SECURITIES.—From time to time, the Board of Directors shall sell and dispose of all securities within one (1) year after they shall have ascertained that such securities at their original cost would not then be eligible for purchase by them. The Board of Directors, in their discretion, at any time and from time to time, may sell and dispose of any securities belonging to the Corporation, and may invest and reinvest, in accordance with the provisions of these By-Laws, the proceeds received therefrom.

Some trusts have gone even further and limited the types of securities that might be purchased, specifying that even common stocks should meet a designated rating by certain of the

investment services. Unfortunately, quality is a changing thing, and it is not likely that arbitrary standards will serve as a substitute for competent investment management.¹⁵

Unless specific mention is made, as in this instance, of the securities that shall constitute the investments of the portfolio of the trust, the matter of investments is regulated entirely by the board of directors and is subject to change at any time.

Restrictions on the investment policies of the trustees or directors of a trust fund are not unanimously regarded as desirable. Some students claim that the managers of the fund should be accorded wide latitude in the exercise of their powers. After all, it is the character of management that spells the success or failure of the venture. With good management no restrictions are necessary. On the other hand, the most stringent restrictions are a poor substitute for judgment. It is probable that the most desirable limitations are those which aim to establish the broad policies of the trust, but which do not prescribe too narrowly the kinds of securities that may be purchased.

Investment trust bonds. The agreement under which discretionary trusts issue bonds should not be confused with the declaration of trust under which the organization itself is created. Although the indentures or trust deeds under which bonds are issued by investment trusts follow closely the legal forms adopted by other corporations, nevertheless, differences have been made necessary by the very nature of the investment trust's business. It is important that adequate provisions be inserted in the indenture under which investment trusts issue bonds for the maintenance of a minimum ratio of market value of securities to bonds issued. It is immaterial whether the issue is collaterally secured or whether it is a straight debenture. In fact, where such a provision is adequately drawn, debenture bonds should be fully as secure as collateral bonds, for a direct limitation is thereby placed on the trust's borrowing powers.

Indentures under which collateral trust bonds are issued usually state the ratio of protection afforded by the deposited collateral. On the other hand, the indentures under which general obligations or debenture bonds are issued limit the funded debt which the issuing corporation may create, by provisions to the effect that no further debt may be created if the ratio of debt to the book value of assets is thereby reduced below

¹⁵ A small trust having such specific standards was the Bankers Holding Trust, Inc., chartered in Maryland in 1924. A receiver was appointed in 1931.

a stated minimum percentage. The coverage provisions stipulated by the Investment Company Act of 1940 have already been outlined.

The events of recent years have clearly shown that any indenture restrictions are likely to be nullified if the issuer invests all of its funds in common stocks. Restrictions that are sufficiently stringent to protect bondholders against loss fully, say to the extent that a banker protects himself in making a collateral loan, would be almost certainly fatal to the debtor in a period of depression. Important reasons for the relatively few failures of borrowing investment trusts have undoubtedly been: (1) the absence of provisions making inadequate asset values behind bonds a condition constituting default; and (2) the liquid character of the assets, which permits the use of principal to cover interest charges in a period when income is inadequate, provided that period is not too prolonged. This peculiar character of the assets of the investment trust, in marked contrast with the fixity of a railroad's or a utility's assets, explains why the asset coverage and the character of the assets receive such prominence in bond analysis here, whereas in other fields income coverage is emphasized.¹⁶ It would seem likely that investment trusts in this country will find it necessary to invest a reasonable portion of their funds in bonds and preferred stocks if they wish to give their own fixed income obligations a high rating.

Removal of trustees. Provisions relating to the removal of trustees and to the appointment of new trustees naturally vary among different trusts. It is customary, however, to give a majority of the debenture holders power to remove the acting trustee and to appoint another. Thus, the provisions found in the indenture between the General American Investors Company and the Guaranty Trust Company of New York vest this power in the debenture holders.¹⁷

Cost of raising capital for management trusts. In the London and Edinburgh trusts the cost of raising new capital has frequently been less than 2 per cent. The age of such trusts, their investment position, and their practice of selling issues without having them underwritten tend to lower the cost of marketing their securities. In this country the cost of raising

¹⁶ For a brief study of some leading issues, see Saunders, David L., "Are Investment Trust Bonds Attractive?" *Barron's*, January 7, 1935, pp. 5, 9.

¹⁷ *Investment Trusts*—N. Y. Report, p. 60.

capital for management trusts has ranged between 3¼ per cent and 10 per cent.¹⁸ Higher costs here are occasioned in part by the practice of distributing new issues through investment banking houses. An additional reason is the fact that American investment trusts are of recent origin, and have not yet been thoroughly established among investors.

Relationship between investment funds and fiscal agents. The cost of senior capital is only one of the expenses chargeable against the assets and income of an investment fund. One must also consider the fees charged for investment service, supervision, and management. In the case of fixed trusts, which do not manage securities beyond the point of original selection, there is no question of subsequent management expense.¹⁹ Where the fund is administered, as in the Scottish type, there must, of course, be some basis for paying those who supervise this work. The costs will depend upon the amounts management decides to spend for research and office expense. If the fund is small it may be at a disadvantage in maintaining a reasonable budget for administration. For this reason some of the ordinary, or closed end, trusts employ outside investment counsel in the manner common to the open end, or mutual trusts. Another arrangement is to pay management a per cent of profits, usually after a stipulated return has first been earned for the investor. The present tendency is away from forms of compensation contingent upon earnings. One measure of trust performance is to compare the total expenses, including managerial compensation, to total assets for a period of years.²⁰ Too much emphasis should not be placed upon this relation, however, because the net results are what count and a high expense ratio may be coupled with a high standard of performance.

A further opportunity for profit to the trust managers might lie in the possibility of their selling securities to the fund at a

¹⁸ *Ibid.*, p. 44.

¹⁹ The original trustee's expenses are often taken care of at the time the certificates are sold. The Investment Company Act of 1940 requires that fixed trusts provide that trustees be entitled to reimbursement for expenses out of the trust property. Usually a definite time is designated when the underlying collateral may be sold or distributed, and the trust may be wound up or continued for a further stated period upon payment of a specified sum to reimburse the trustee for further services.

²⁰ In an analysis of investment trusts made by *Standard Trade & Securities Service*, it was found that the ratio of expenses to assets for 44 companies varied from as low as .12 per cent to 2.29 per cent. The average ratio of expenses to assets was .87 per cent. See section entitled "Industries," March 30, 1931, p. U-104.

profit. The more conservative trusts are safeguarded against such abuses by provisions in their indentures. The provision of the Investment Company Act of 1940 that forbids that a majority of the board of directors of a registered company shall consist of its regular brokers, or principal underwriters of securities, or investment bankers, is aimed at this abuse. The evils of permitting the agent for the trust to profit as principal are too obvious to warrant further discussion. Better, however, than formal stipulations is a record of scrupulous dealing and wise management over a period of years.

Published reports. Formerly many management trusts here and abroad did not make public their security portfolios, a policy which was defended on the grounds that publicity would give away the results of expensive research. The argument overlooked the fact that a mere list of holdings does not indicate the statistical or other reason for purchase, nor does it even give information about purchases or sales until some time after the trust has actually executed its transactions. The danger of secrecy was demonstrated early in the history of English investment trusts when, during the Baring crisis, some of these trusts were used for dumping securities of questionable value. The same abuse was widely prevalent among American trusts closely affiliated with investment bankers and-explains much of the favor accorded the fixed trust. Today most of the important investment trusts publish detailed lists of their holdings. All investment trusts whose issues are listed on the New York Stock Exchange are required to report annually (they usually report more often) at least 90 per cent of their holdings, showing the names and the quantities of the securities. Without such a list, it is impossible to determine break-up, or liquidating, value, and to gain any idea as to the recklessness or conservatism of the management. All registered investment companies are now required to make full reports to stockholders at least half yearly.

In an analysis of investment trust issues, the liquidating value constitutes one of the most important factors to be considered by the investor. By tracing the liquidating value, which substitutes market for book values in the balance sheet, the position of both prior securities and the common stock can be determined in the light of current prices. By comparing the net liquidating value of the common stock from period to period, appreciation or depreciation can be watched, and relative per-

formance of various trusts and the general market can be studied. A measure of common stock performance that would include both dividend income and appreciation may be obtained in the following way: (1) add dividends to any increase in the common stock equity; and (2) subtract any capital paid-in (whether stock or surplus). In surplus decreases, a subtraction would be made, and any stock retired would be treated as an addition at its cost price. When the net result of each year is compared as a percentage with the liquidating value of the common stock at the beginning of the year, a valuable measure is obtained. Sometimes this test is applied to the income and value change of the total assets rather than to the common stock value, in order to eliminate the effect of trading on the equity, which is discussed below as "leverage."²¹

For fixed trusts, of course, it is essential that a list of the underlying collateral be published. In fact, the only basis for value in such trusts is the collateral underlying the securities issued, since management has little relation to the investment. Such trusts should be required to state definitely the amount of each security deposited as collateral. Furthermore, when substitution is permitted, any changes in the underlying collateral should be reported at once.

The leverage factor. The junior issues of investment trusts having senior capitalization may appreciate or depreciate more rapidly than the market. This condition may be explained in part as follows. Suppose a trust is organized with \$10,000,000 in debentures and 50,000 shares of no par common stock worth \$50 a share, or a total capitalization of \$12,500,000. This money is invested, and in a period of time shows a net increase, after all expenses, of 20 per cent. The net assets will then total \$15,000,000. The holders of the bonds are entitled only to the original \$10,000,000 which they contributed to the enterprise, but the owners of stock now have an equity equal to \$5,000,000. Thus, while the total assets of the trust have increased only 20 per cent, the common stock has doubled in value. Had a de-

²¹ For such a study of portfolio performance of the larger management investment companies see articles appearing from time to time in *Barron's*, as L. Tomlinson, "A Decade of Investment Management," January 29, 1940, p. 18, on open end funds, and "Closed-end Trusts' Ten-Year Record," February 19, 1940, p. 18. Also see S. E. C. report on *Investment Trusts and Investment Companies*, Vol. II, "The Statistical Survey of Investment Trusts and Investment Companies," 76th Cong. 1st. Sess., House Doc. 70 (1939), Chap. VI, "Performance of Large Management Investment Companies Proper, 1927-1937."

crease of 20 per cent in the total assets occurred, instead of an increase, the equity of the common stockholders would have been reduced to zero. It may be noted that the leverage factor as applied to investment trusts is but a specific instance of the more general case discussed under the subject "Trading on the equity."

A simple measure of leverage is the ratio of the portfolio to the common stock equity. Since the claims of the holders of bonds and preferred stocks are constant, each dollar of change in portfolio value is reflected in the common stock equity value. If the portfolio is twice the value of common stock, the liquidating value of the latter will move twice as rapidly as the market value movement of the former. In the illustration previously given, this leverage ratio was five, as may readily be seen from a simplified balance sheet.

<i>Assets</i>		<i>Liabilities</i>	
Investments.....	\$12,500,000	Bonds.....	\$10,000,000
		Common Stock.....	2,500,000
	<hr/>		<hr/>
	\$12,500,000		\$12,500,000

As the portfolio rises in value, however, and the common stock equity grows larger in relation to the debt, the leverage declines with the fall in risk. The reverse is also true. At times the liquidating value of the common stock may decline below zero, and if a recovery were impossible, the stock would be worthless. Actually, however, because of the attractions of the leverage factor, such stocks very often have a market value that will fluctuate with the prospects of a rising stock market. The utility of such high leverage stocks, when they are suitably supported by a common stock portfolio and sufficient income to carry current charges, is obvious during a period when inflation is threatened. In such a situation the character of the portfolio, as well as the degree of leverage, must be examined.

✓**Future of the investment trust.** The growth of the investment trust at home and abroad leaves little doubt as to its permanence as an institution of finance. Many trusts have failed to meet the expectations of their sponsors. The ultimate success of any trust depends largely, if not entirely, on management, and management is a personal element that varies widely.

The individual investor will find an analysis of investment trust securities the more difficult on this account. Management cannot be measured and appraised on any purely statistical

basis. It is true that an examination may be made of the charter and by-laws, or of the declaration of trust under which the directors or trustees operate, in order to find what restrictions are set forth. Such an investigation, however, can throw but little light on the future of the trust, for, with proper management, the fewer the restrictions the better. However, after a period of years, management will write a record into its financial reports, which can tell much of temperament, integrity, and investment ability.

The ultimate success of the trust will depend, of course, on the wise selection of securities. This does not mean that only securities of the highest grade should be purchased. There would be little profit accruing to a trust which purchased nothing but United States bonds or high-grade state and municipal bonds. The real profits will be made through the purchase of securities which, for one reason or another, are selling at prices below their actual worth, or which have good possibilities of future enhancement.

The matter of dividend policies also determines in part the ultimate success of the trust. The chairman of the Edinburgh Investment Trust states that one of the secrets of trust management is to allow a portion of the net revenue of the trust to accumulate at compound interest.²² In this way reserves are set up to take care of future losses. It is especially necessary that this course be followed, for the trust makes an appeal to the small investor, who needs safety and who prefers a stable dividend rate, although small, to a fluctuating one. However, the mutual fund type of trust distributes substantially all of its net income each year and so the regularity of its payments depends on the selection of relatively stable dividend payers.

The original charge made against the investor's dollar for securing capital for trust operation, the subsequent management charges, and the fiduciary relations with the managers that are allowed by the trust indenture should be examined before a commitment is made. A trust that has been set up primarily to afford a profit to its managers is not likely to prove a profitable commitment for the investor.

The requirements necessary to make a sound investment company would include: (1) a charter and by-laws that observed sound principles; (2) a capital structure with no, or only a

²² Robinson, Leland R., *British Investment Trusts*, United States Department of Commerce, 1923, p. 23.

prudent proportion of, senior securities; (3) an operating record that demonstrated ability to keep expenses at a reasonable level and adjust investment policy to changing conditions; and (4) adequate publicity in the way of financial and portfolio reports. Where any of these conditions are lacking, a speculative situation exists which should be avoided by those unable to appreciate or assume the attendant risk.

Investments Secured by Real Estate

The most common form of security issued against real estate is the real estate mortgage. This type of security has been known for many centuries. Actual records unearthed in Mesopotamia show that as early as 2100 B.C., mortgages on real estate were given to secure loans. The basic uses to which land is put, the dependence of man on land for meeting his every need, the relative stability of values found in land and real estate, except in areas where speculation has been overdone, make real estate mortgages one of the soundest and most stable of all investments.

Mortgages may be classified in several different ways. One distinction is between mortgages on improved property and those on unimproved and unproductive property, although the fact that property may be only partially or inadequately improved sometimes makes such a distinction difficult. The important difference is that unimproved property yields no income, whereas improved property is capable of producing an income. Consequently, the taxes and mortgage interest of the former must come from the owner's resources, while the income from the latter takes care of carrying costs. Income-producing property can help to carry expenses if the mortgage is defaulted and, in general, such property has a more definite and steady value and is more readily marketable. However, where the buildings are worn-out and dilapidated the income may be so small and uncertain as to make the property unimproved for practical purposes.¹

Mortgages may also be classified on the basis of the uses to

¹See also p. 580.

which the mortgaged real estate is put. Property may be farm or urban, and the latter may be used for residential or business purposes. Residential loans may be on one- or two-family houses, or on apartment houses. Business property loans may be secured by stores, lofts, offices, garages, hotels, motion picture theaters, or even small factories. To be classified as a "real estate" mortgage instead of an "industrial" bond issue, the property must be small enough and be located where it can find another tenant or purchaser readily in the event of the insolvency of the borrower.

In general, the owner-occupied home enjoys the greatest favor as mortgage security. Such an owner has a strong incentive to avoid foreclosure. A sentimental factor, as well as the need for shelter, is present. In the case of larger properties, the borrower is likely to default soon when the rental income becomes insufficient to carry the mortgage and other costs. Furthermore, the marketability of property diminishes as its size increases. On the other hand, the care and expense of handling a few large loans is less than for a number of small mortgages.

While a somewhat higher risk attaches to loans on "special purpose" property, such as garages, clubhouses, hospitals, and hotels, some borrowers have had a favorable experience with churches and small business locations such as garages and laundries. This experience may reflect special care in the selection of borrowers as well as in appraisal of property. The following data show a portion of the experience of one mortgage lender:

PROPORTION OF FORECLOSED AND TROUBLE LOANS BY THE HOME
TITLE AND GUARANTY COMPANY OF BROOKLYN: 1906-1984*

<i>Type of Security Mortgaged</i>	<i>Total Amount of Loans Made</i>	<i>Trouble Ratio†</i>	<i>Loss Ratio</i>
Dwellings:			
One-family	\$44,376,000	4.87	0.59
Two-family	26,938,000	9.68	1.30
3- and 4-family	8,902,000	9.16	2.30
5- to 8-family	3,772,000	10.92	2.36
More than 8-family	18,102,000	30.86	2.72
Stores:			
Without apartments	2,065,000	26.82	6.17
With 1 to 4 apartments	12,695,000	16.40	4.97
With 5 to 8 apartments	1,561,000	32.44	6.35
Factories, Laundries, and Warehouses	3,119,000	4.93	1.42
Special Purpose (Clubs, Institutions)	3,452,000	32.54	6.77
Vacant Land	4,160,000	10.46	1.04

† Ratio of foreclosed and trouble loans to total loans on same type of property.

* Source: Ledge, Edgar A., *A Mortgage Analysis, 1906-54* (Brooklyn, N. Y.: Home Title & Guaranty Company, 1955.)

The relative safety of real estate mortgages has been recognized and explains why many states have made them legal investments for savings banks, trust funds, and life insurance companies. Thus Massachusetts and New York both permit savings banks to invest up to 70 per cent of their deposits in first mortgages on real estate located within the state, such mortgages not to exceed 60 per cent of the value of pledged real estate. If loans are made on unimproved and unproductive real estate, the amount lent thereon must not exceed 40 per cent of the appraised value.

In contrast with the safety of the principal and the income of this type of investment, there are certain disadvantages. Mortgages lack marketability and are often in inconvenient denominations, which explains their more frequent purchase by institutional rather than by individual investors. A substantial amount of detail is required in supervision. The mortgagee must see to it that adequate insurance is kept on the property, that taxes are properly paid, and that the property is not allowed to depreciate. There is often some difficulty in the collection of interest. It is also necessary to be familiar with property values in the locality where loans are being made or to rely on independent appraisals.

Individual mortgages and mortgage bonds distinguished. The real estate mortgage differs but little in its legal detail from the mortgage under which mortgage bonds are issued. Since we have already discussed at some length the legal aspects of a mortgage, it is not necessary to take this matter up again.² It is sufficient to say that the mortgage is really a deed in which a conditional transfer of the title to a specific piece of property is made as security for the payment of a loan. The mortgagee, therefore, holds the legal title to the property, while the mortgagor holds the equity of redemption. In the event of failure on the part of the mortgagor to carry out his part of the agreement, the mortgage is said to be in default. The mortgagee then proceeds to foreclose the mortgage.³

² See Chapter 7.

³ The mortgage, or deed of trust conveying the property to the mortgagee, subject to the right of redemption by the mortgagor, is the instrument which gives a lien on the property. The note or bond which accompanies the mortgage is the promise of the borrower to pay the debt. In New York State the accompanying document is known as a bond. It consists of three main divisions: (1) the acknowledgment of the debt; (2) the promise to pay; and (3) default provisions.

The deed (mortgage) must be signed by the parties in whose name the property stands, must be acknowledged before a notary (in many states), should be

In the mortgage bond issue, a mortgage is made out to a trustee, and the promises to pay (bonds) are held by the several investors. Instead of taking direct action, as with individually owned mortgages, bondholders have to have the trustee act in their behalf to enforce mortgage covenants or carry out foreclosure. Since such action requires time and expense, the bondholder is at something of a disadvantage as compared with the mortgage investor, as will appear more fully in the later discussion of the former field of investment. The ordinary mortgage, such as is found in the financing of homes, will be considered first.

The mortgage agreement. The mortgage terms will include the amount of the loan, the times for the payment of interest and principal, the rate of interest, the covenants whereby the debtor agrees to protect the mortgagee by keeping up repairs, paying taxes, and carrying adequate insurance. Failure to abide by these terms means default and the right of the creditor to seize the property by proper legal steps. The interest rate must not exceed the maximum set by law.⁴ The actual rate will vary from place to place with local lending conditions and, in most cities, with the quality or risk factor. After covering certain details that go with the making of the mortgage, we shall discuss the two most important aspects of mortgage safety, (a) the restriction of the loan to a reasonable relation with the value of the property, and (b) the terms of repayment.

Details in handling mortgages. In practice certain details should be attended to at the time the mortgage is taken. The absolutely essential details are: (1) fire insurance; (2) title insurance; and (3) registration.

recorded, and must contain the release of dower. The note or bond must be signed by the borrower, but in most states need not be sealed. Ordinarily it is not recorded. Dower has no bearing on the bond, and consequently the wife of the borrower need not sign unless she is coowner of the property, in which case it is customary to have her join in the bond.

⁴Many states have usury laws specifying the rate of interest which may be charged on loans to individuals. The stated rate of interest in the loan does not always equal the *effective* rate to the investor because the mortgage may be acquired for less than its face value. The real test is: Will the contract, if performed, result in the lender's receiving a rate of interest greater than that allowed by law, and is this result intended? Usurious contracts are void and unenforceable in some states. In other states a usurious contract may be enforceable up to the legal rate of interest. It is very important, therefore, that the investor acquaint himself with the usury laws of the state in which he proposes to take mortgages of this kind, to see if they conflict with such laws. Corporation borrowers cannot plead usury. In some states there are exceptions to usury laws in the case of specified types of loans.

Fire insurance. A sufficient amount of fire insurance should be placed on the property to protect the mortgagee. Where the mortgaged property consists of land only, fire insurance is not necessary. In other cases it is customary to require policies with approved companies at least equal to the amount of the mortgage; otherwise the mortgagee is liable to suffer a serious loss in the value of his underlying security. Generally somewhat more is required to cover possible delinquent interest or possible outlays, as for taxes, that the mortgagee may have to make to protect his loan.⁵ Fire insurance policies should be held by the mortgagee, and attached thereto should be a mortgagee's clause, properly assented to by the company issuing the policy, in which the mortgagee is accepted as beneficiary to the extent that his interest may appear under the mortgage.⁶

Search and insurance of title. It is also important that the mortgagee be assured that his debtor has a proper title to the property in question. This matter may be determined with reasonable accuracy by a lawyer's examination of the records at the registry office at which title history of the given land is kept. Such an examination will show whether the mortgagor has a clear title, and what liens, if any, are registered against the property. The lawyer's search will probably reveal any obvious defects in the title, but is by no means always adequate. It is far better, where it is possible, to have the title insured by a reputable title company. Such companies issue title policies not only to mortgagees, insuring their interest in the title, but to the owner as well.

It is customary for such companies to guarantee: (1) that the title is marketable; (2) the exact condition of the title in respect to other liens; (3) that all costs in connection with litigation over the title have been paid; and (4) that the title company will protect against any loss which may arise from a defect in the title. The fees charged by such companies are nominal and are paid once and for all when the policy is issued.⁷ The mortgagor is

⁵Some lenders require insurance up to the full value of the property, although the mortgage may be only 60 or 70 per cent of such value. This requirement might be essential where the policy contains a coinsurance clause. For a description of coinsurance, see Riegel, Robert, and Loman, H. J., *Insurance Principles and Practices* (New York: Prentice-Hall, Inc., rev. ed., 1929), p. 367.

⁶See *ibid.*, p. 304, for a description of the special advantages of the standard mortgage clause.

⁷The customary fees for a single policy are one half of one per cent of the face value of the policy plus a base fee of \$15 on all policies under \$40,006. For each \$1,000 over this amount, the fee is \$2.50, per \$1,000. Where the title

customarily required, when applying for the mortgage, to agree to furnish a title policy, or to pay the necessary legal fees in connection with a title examination.

In some states the Torrens certificate, which is a guaranty policy issued by the state, is increasing in popularity. Because these certificates are issued by the state, whose laws govern title, an absolute and undefeatable title is created for the persons to whom they are issued, once legal formalities have been complied with, whereas the title insurance policy of the private organization merely indemnifies against money loss up to the amount of policy in case any flaws in the title should appear.

Registration. As soon as the mortgage is executed and passed, it should be recorded. This registration customarily takes place at the county clerk's office in which the land records in question are kept. For this reason many mortgage transactions are consummated at this office, in order that the registration may be effected at once. Failure to record a mortgage does not make it invalid, it is true; but such failure cannot be held against a third person who subsequently acquires a claim on the property, on the assumption that there was no other lien. In other words, assume that individual *A* has an unrecorded mortgage on a certain piece of property now owned by *B*. Although *B* is fully aware of *A*'s mortgage, he decides to execute another mortgage to *C*. *C*, having no personal knowledge of *A*'s mortgage, examines the records and finds them clear; he then takes another first mortgage on *B*'s property, which he immediately records. *B* then becomes bankrupt, and *A* finds out that another first mortgage has been placed on the property and has been properly recorded. His mortgage becomes, in effect, a second mortgage. It is true that *B* acted fraudulently, but this fact is of no financial aid to *A* if *B* is insolvent. *A*, in fact, suffers from *B*'s fraud because of his own neglect in not recording his mortgage.

Importance of appraisal methods. Up to this point matters of detail that should be borne in mind when investments in mortgages are made have been considered. Important as such details are, they do not involve the fundamental elements of risk to be found in real estate mortgage investments. The first investment risk, at least from the standpoint of importance, lies in the appraisal, on the basis of which the loan is made. It is customary for savings banks to loan up to 60 per cent of the

company places the loan, the cost of the policy is usually included in the bonus with which the borrower is charged for executing the mortgage.

appraised value of urban property. In the case of farm loans the mortgage is usually restricted to 50 per cent of the value of the land and 20 per cent of the value of the improvements. These limits may be considered as conservative. Nevertheless, some institutions make loans up to two thirds of the value of the property. Savings and loan associations, which for the most part loan on residential properties occupied by the owner, are permitted in some jurisdictions to grant mortgages up to 75 per cent of the value of the property. Federal savings and loan associations also are permitted to lend up to this limit. However, these associations require borrowers to pay off these loans on a monthly repayment plan that amortizes the whole loan over a period that until recently ran approximately twelve years.

Appraisal of real estate for mortgage purposes: general. Appraisals that are made for mortgage purposes should center on market values. If the mortgage is to give proper security to the mortgagee, the underlying property must have a market value in excess of the amount of the loan. It may be argued that so long as the derived net income of mortgages on income-producing properties is sufficient to pay expenses, interest and amortization, market value is incidental. The answer is that if the income honestly derived from the property is sufficient to meet these requirements and is permanently established, the property will have a value equal to or in excess of the amount of the loan. But cases have been known where temporary "dummy" tenants, who pay exorbitant rent to supply a fictitious value for financing purposes, are put in occupancy. Again, during a period of housing shortage, rents may be forced temporarily to a high level so that they may appear to justify a market value considerably in excess of replacement costs. Such values, even when established by actual sales of property, should be checked with care.

No single method of appraising real estate for mortgage purposes can be established that will be correct for all the different kinds of real property. For example, the value of store property is often computed on the basis of gross rental; office buildings, as well as some of the larger apartment houses, are appraised on the basis of net income; whereas unimproved land may have no present income at all. Single-family houses of the better type are almost invariably purchased and held for residential, not for rental, purposes; consequently, they are

not readily subject to the income test of value. The science of appraisal is indeed a subject by itself, and all that we can do at this point is to indicate in a general way some of the appraisal methods in common use.⁸ To arrive at a valuation various methods are used: (a) comparison with the prices at which similar properties are being sold currently, (b) cost of replacement with allowance for depreciation, and (c) capitalization of rentals.

Appraisal of residential property: comparison of sales prices. The simplest method of appraising residential property is that of inspection and price comparison. That is, the appraiser inspects the property, notes its general characteristics, and compares it with other property similarly situated and constructed which has recently been transferred, or which is on the market at the time the appraisal is being made. Real estate firms that operate in the area in which the property is located generally have a record of sales of similar property. Where no actual sales records are available, it is often possible to approximate the sales price by reference to the revenue stamps put on the deed of properties that have recently been sold.

There are serious objections to this method of appraisal, however, in that no means are provided for an accurate check on all the various items of value that go into the building. For instance, the size of the building, the number of rooms, the room layout, the architectural plan, the style of plumbing, the kind of wood used for flooring, the type of heating plant, the roof, the dimensions and location of the lot, the nearness to undesirable structures, the age of the building—these, among other matters, all have their effect on value. The problem of the appraiser is to give proper weight to all these factors.

Separate appraisal of land and buildings. A more refined method of appraising residential property, therefore, begins with an analysis of land value, to which is added the cost of constructing the improvements less proper depreciation for age and obsolescence. The most accurate basis for land valuation in such cases is the record of recent transfers of land in the neighborhood in question, with proper adjustments for corner locations, and for other special factors that may be involved. Land for residential purposes may be valued on a square foot or a front foot basis, although more commonly the front foot

⁸For a detailed treatment of the subject of real estate appraisals, see Babcock, Frederick M., *The Valuation of Real Estate* (New York: McGraw-Hill Book Co., 1932).

basis is used, and proper correction is made for variations in depth and nearness to corners.

There are a number of tables that are commonly used to make adjustments for variation in the depth of lots. In New York, the Davies rule or the Hoffman-Neill tables are frequently employed. In Cleveland, the Somers table prevails. In fact, there is a slight adjustment in the tables used in different sections of the country to take care of variations in local customs.⁹

Lots situated on a corner, or one lot in from the corner, are generally more valuable than lots situated in the middle of the block. The customary rule is to add to the value of a standard lot facing a particular street an additional 50 per cent to determine the value of a corner lot. This rule applies more particularly to lots used for business purposes than to those used for residential purposes, although corner locations are often more valuable for residential purposes than are interior lots. The added value in such cases will depend on the local situation, since there is no general rule for determining the added allowance to be made.

The matter of plottage value must also be considered in localities that are especially adapted to apartment houses or to large office or commercial buildings. In such areas a single 50- or 100-foot lot may be inadequate for the erection of the best-adapted structure. Two, three, or more lots must be combined. By reason of the fact that, in such localities, the larger area can be developed or improved to better advantage, there is an added

⁹ The reader will find complete tables as used in different localities in Babcock, Frederick M., *Real Estate Appraisal* (New York: The Macmillan Co., 1926), Chapter XII. The following portions of the Davies, Hoffman-Neill, and Somers rules are given for illustrative purposes:

DEPTH TABLES*

<i>Depth in Feet</i>	<i>Davies Rule, New York</i>	<i>Hoffman-Neill, New York</i>	<i>Somers Rule, Cleveland</i>
90.....	.93849	.94	.9560
95.....	.96921	...	.9785
100.....	.99917	1.00	1.000
105.....	1.02841	...	1.0208
110.....	1.05698	...	1.0400

* Sample illustration.

Let us assume that the lot to be appraised has a depth of 90 feet and a width of 50 feet, and the front foot value of standard lot is \$100. If our lot were standard—that is, 100 feet in depth—its value would be \$5,000. The depth being only 90 feet, however, its value according to the Davies rule would be \$5,000 × .93849, or \$4,692.45. Based on the Hoffman-Neill tables, its value would be \$4,700, and on the Somers table, \$4,780.

value when lots of suitable size are combined into a parcel. Where there has been a successful grouping of small lots in this way, it is customary to appraise the aggregate area by adding to the total of the values of the individual lots a percentage, usually 10 per cent, in order to arrive at the value of the larger plot.

The process of assembling lots may also create a sort of "nuisance" value for one or two of the individual lots in the area of proposed plottage. Thus, where an operator or builder has acquired all but one, or possibly two, of the individual lots necessary for the erection of a properly planned building, he may be compelled to pay a higher price for the remaining parcels. Although such value is often created in situations of this kind, it is dangerous to use it extensively as a basis for mortgage loans, for, in the event of a change in the builder's plans, there may be a collapse in this so-called nuisance value.

Methods of appraising buildings. The next step after the land has been valued is to value the improvements thereon. Here the appraiser must concern himself with the suitability of the improvements for the location. Where the land and the improvements thereon bring a maximum rent, or, in the case of residential land, where the type of building (considering cost, architectural layout, and nature of structure) is adapted to the lot, the land is said to be adequately improved. Where the land is adequately developed—that is, where the best-adapted structure is on the land—it is safe to add to the land value the estimated cost of the structure less depreciation.

Where the land is not adequately improved, it is necessary to estimate the total value of the land and buildings combined by a comparison of the sales prices of other property in the vicinity, or by the capitalization of the income from the property. The value of the buildings, independent of the value of the land, may then be determined, if desired, by subtracting from the total value the independent value of the land.

In determining the value of the structures on the basis of construction costs, the appraiser usually works from some unit base, such as the square foot of floor area or the cubic foot of content. The construction cost per square foot of floor area or cubic foot of content will vary for residential properties within certain limits, as indicated in the illustrative figures for the year 1936, on page 581.

Having prepared the measurements of the building, the ap-

praiser, to arrive at a total cost, must determine the grade of construction, select the proper unit cost, and multiply the total cubic content or square foot area by this cost. If the building is over a year or two old, he should deduct depreciation from the results obtained above. From the limits set in the table costs will vary with the community being studied and with changes in the level of prices of construction material and labor from year to year.

CONSTRUCTION COSTS, RESIDENTIAL PROPERTY: 1936

<i>Type of Structure</i>	<i>Square Foot Costs</i>	<i>Cubic Foot Costs</i>
Frame, Low-Grade, 1-, 2-, or 3-Family	\$4.00-\$5.00	20¢-24¢
Frame, Medium Construction, 1- and 2-Family. . .	5.00- 5.75	24 -28
Frame, Medium Construction, Single Family . . .	5.75- 6.50	28 -32
High-Grade Frame, Single Family.	6.50- 8.00	32 -40
Brick Veneer, Single Family	6.00- 7.00	30 -38
Brick Apartments, Low- to Medium-Grade. . . .	6.00- 7.00	25 -38
Brick Apartments, High-Grade.	6.75-10.00	38 -50
Brick, Single Family, High-Grade	8.50-12.00	42 -64

Appraisal by means of capitalizing rentals. Where residential property is rented, or where it is of such character that it may be rented, appraisal may also be made on a rental basis. At the present time, it is customary in many communities to appraise strictly residential property—such as one-, two-, and three-family houses, where no collateral service such as heat or janitors is furnished—at 100 times the monthly rental, or at 8.33 times the annual rental. This method is equivalent to that of capitalizing gross rentals at 12 per cent. For new structures, where repairs and upkeep are low, a 10 per cent rate of capitalization is sometimes used. The rate to apply in a given case, however, will depend largely on local conditions.

For apartment properties, where heat and janitor service are furnished, it is necessary to use a higher rate of capitalization. A rate between 15 and 20 per cent is customarily used in such cases to capitalize the annual gross rental into a value. This apparently larger return merely gives weight to the added expense of furnishing heat, janitor service, and sometimes refrigeration, gas, telephone, and elevator service.

The use of the capitalization method for appraising property is not recommended as highly accurate. In the first place, old structures may rent at relatively high figures in relation to market value because the buildings may be almost worthless. Furthermore, it is necessary to make proper adjustments for

vacancies and for loss in collections in arriving at gross revenues. The capitalization method of appraisal in respect to real estate is recommended as a check rather than as a definite and independent method, except where other means of ascertaining values are lacking.

Analysis of appraisal card. Figure 19 was designed for use in appraising residential and apartment house properties for loan purposes. It is aimed not to provide for a complete analysis but rather to suggest a method for recording and weighing the more important factors that should be considered by the appraiser when making valuations for mortgage purposes. (See page 583.)

It will be seen that provision is made here for three bases of appraisal. It is always possible, in the case of new properties that are adapted to the land on which they are built, to work out the appraisal on two bases, and, where the property is rented, to use the capitalization method as well. Under the floor area basis, the appraisal card provides for a somewhat more detailed analysis than was previously suggested, in that the structure is valued without taking into account heating plant and bathrooms. An allowance, which is added to the total figure, is then made for these items. Where this procedure is followed, a slightly lower unit square foot basis may be used than is otherwise customary. In this way, special consideration can be given to the presence of oil burners, tiled bathrooms, extra bathrooms, and other unusual features which would tend to modify the usual, or average, unit values.

Appraisal of business property. The valuation of business property is a profession in itself and should be undertaken only by one who is thoroughly familiar with the locality in which the appraisal is being made. The basic principles, however, are much the same as those used for residential property. Where the site is adequately improved, it is possible to find the combined value of the property by appraising the land according to sales of similar lots in the neighborhood, and to add thereto the cost of the building less depreciation. As a check against the results obtained by this method, it is possible to capitalize rentals, both gross and net. Store properties in growing localities generally sell for from 8 to 10 times their gross rentals; loft buildings, from 5 to 7 times their gross rentals; and high-grade office buildings, on about the same basis as loft buildings. High-grade business property sells from 15 to 25

APPRAISAL FORM LEAD NO. _____

LOCATION OF PROPERTY **26 GRANT AVE.**
NEWTON, MASS.

TYPE OF STRUCTURE **SINGLE - 2 1/2 STORIES**
1/2 BRICK - HIGH GRADE CONSTRUCTION

CHARACTER OF DEVELOPMENT **HIGH GRADE**

TRANSPORTATION **GOOD**

FLOOR PLAN

BODY DESCRIPTION **Asphalt Slings Outlets Cobblet Wood**

OUTSIDE STRUCTURES
DESCRIPTION **2 GAR FRANK**
ESTIMATED VALUE **\$900**

FRONT PORCH **67** AREA **\$700** *1/2 fl.*
DIMENSIONS **67 X 130 INCHES** PER FOOT DASH **175 ft.**
TOTAL VALUE **\$6520**

CUBIC CONTENTS

BUILDING	EST.	EST.	EST.	EST.	CONTENT & BASIS
2 1/2 STORIES	28	12	32	32	14,350
EXTENSION	10	12	10	10	800
					7,525
					25,875

LAND & GRADING **7,525**
TOTAL **\$33,400**

BASIS PER
CUBIC FOOT **50¢**

VALUE COMPUTED ON BASIS FLOOR AREA

ROOM AND FLOOR	EST.	EST.	EST.	EST.	ESTIMATED VALUE
LIV. ROOM	28	12	32	32	1,860
SUN. PARLOR	10	12	10	10	800
DINING ROOM	16	12	16	16	3,400
KITCHEN	14	12	14	14	1,120
BEDROOM	10	12	10	10	1,120
"	10	12	10	10	3,120
"	14	12	14	14	2,320
THIRD FLOOR					2,400
Flower all					
Laundry					
W.C. Room					
TOTAL					17,320

ESTIMATED SQUARE
FOOT BASIS **150**

VALUE COMPUTED ON BASIS FLOOR AREA

MONTHLY RENTAL	MONTHLY RENTAL	MONTHLY RENTAL	MONTHLY RENTAL	MONTHLY RENTAL	MONTHLY RENTAL
FLOOR 1					
2					
TOTAL					

ESTIMATED VALUE **\$33,400**

ONE ICE EXCEPT WHERE HEAT
IS TURNED ON, THEN 10

PRESENT OWNER **FRANK JONES**

NAME OF MORTGAGEE **JANE**

ADDRESS **26 GRANT AVE.**
NEWTON, MASS.

OCCUPATION **ACCOUNTANT. CREDIT A**

PRESENT MORTGAGE **14,800 CONSTRUCTION**

APPRAISALS RECOMMENDED

AMOUNT	BY
23,000	BADGER
23,500	BROWN & CO.
24,000	OWNER

LOAN APPROVED FOR **\$10,000**

BY **RGB**

DATE OF INSPECTION **Sept. 16, 1935**

MAP



PROPERTY APPRAISED



STREET VIEW

Figure 19—Specimen Form of Real Estate Appraisal Card.

times net rentals, depending on the rapidity of community growth and the chance for capital gains in land values.

Where the property is inadequately developed, a different problem is involved. It may be possible to capitalize the income of the property in order to ascertain its value, but the capitalized value should more than equal the land value. Otherwise, the present structures must be considered as being so poorly adapted to the site as to be worthless. In such a case, unless the existing buildings can be materially improved, it would be profitable to tear them down and erect new ones that better utilize the land. Where this situation exists, the prospective mortgagee should consider only the land value present.

Because of the experience and care required to make an accurate appraisal of business property, the investor who contemplates loans of this character will do well to employ the services of a reputable and conservative firm, familiar with local values, and to rely on the report of such a firm.

Unreliability of tax values. The tax value of property rarely has any significance in real estate appraisals. The procedure followed by assessors in valuing property varies in different cities as well as in the same city at different times. It frequently happens that the amount of tax which a municipality pays to the county or the state in which it is located depends on the relation that its total assessed valuation bears to the total for the county or the state. Accordingly, the local assessors are inclined to assess property within the local area at from 50 to 75 per cent of its true value, and to raise the local tax rate in proportion. The local property owner pays no greater total amount, and the city's contribution to the county or the state is correspondingly reduced.

However, assessed valuations actually exceed 100 per cent in some communities because of the pressure to raise revenue and a need to hold the tax rate below a legal limit.

Margin of safety. Mortgage loans might be made for 100 per cent of the value of the property or even more without loss if the personal credit of the owner-debtor were adequate. However, so long as the real estate is to be the primary basis for the loan, some margin must exist between the value of the property and the amount of the mortgage. Factors that make such a margin of safety essential are: (1) errors in valuation, (2) costs of selling property in the event of foreclosure, (3) items that

will probably add to the debt in the event of trouble, such as delinquent interest and taxes, and (4) foreclosure costs. (1) Since valuation is a matter of judgment, market value may turn out to be somewhat more or less than such an estimate no matter how carefully the appraisal is made. Some institutional appraisers deliberately set their valuation below what they regard as probable market value to cover this range of error and to allow for a "forced sale," that is, a sale on which price is cut below what might reasonably be realized in time by waiting for a suitable and willing purchaser instead of by an immediate sale for whatever can be obtained on short notice. (2) In order to sell foreclosed property, the mortgagee will have to pay a sales commission, which will run at approximately 5 per cent in the case of average single family dwellings. (3) Whenever a loan becomes delinquent, certain expenses, notably interest, taxes, and maintenance, usually accumulate before the mortgagee is able to realize upon the foreclosed property. These expenses accumulate not only up to the time of admitted default, but during the subsequent period in which legal action to foreclose is being taken and sometimes during whatever period the mortgagee is given to redeem his property. Since most persons desirous of acquiring property do not care to invest in real estate subject to redemption, the mortgagee generally finds it necessary to take over the property at the time of foreclosure and hold it until the redemption period has elapsed. For this reason and the fact that delays are opportunities for price declines, a long period of redemption makes additional risk for lenders. (4) Foreclosure expenses vary greatly from state to state and constitute another item to absorb a part of the pledged security.¹⁰

¹⁰For the Home Owners' Loan Corporation experience of foreclosure costs and the time required to complete the process, see "Mortgages and Foreclosures," *Federal Home Loan Bank Review*, November, 1937, pp. 40-45. At one extreme stood Illinois, where it cost over \$300 to foreclose a \$5,000 mortgage and took over 1½ years to complete acquisition of the property, so that as a result of loss of interest, accruing taxes, insurance, and depreciation, the total costs amounted to about one fourth of the mortgage. The writer concludes: "It is obvious that in this state a lending institution which loans for more than 65% of the appraised value of the securing property has inadequate protection." In Massachusetts foreclosing costs were about \$30 and the process only two months, so that total costs ran only 3 per cent of the mortgage.

For further data see *Seventh Annual Report Federal Home Loan Bank Board* (1939), pp. 134-135, 217-219.

This abbreviated review of the items that make a margin of safety necessary indicates why the permissible maximum should vary from state to state and under diverse lending conditions. It also shows the reasons why high percentage loans are certain to cause investment losses.

Some would add to this list the need for protection against decreases in the value of the security. Prior to the depression of the early 1930's, many institutions made short-term mortgage loans with no provision for amortization, so that the margin had to protect against price declines. The recent tendency has been to switch to amortized loans, made popular by the savings and loan association. These loans, running from 10 to 25 years, usually provide for complete repayment over the life of the loan. If the original loan is adequately margined, protection against shrinkage in the value of the pledged real estate may be cared for by debt retirement, which will be discussed after a survey of the factors that cause property to decline in value.

Causes for declines in real estate values. The more important general causes for the decline of real estate values may be listed as follows:

1. *Depreciation and obsolescence.* Depreciation is customarily computed on the basis of the expected useful life of the building. Thus, in the case of single-family dwellings, frame structures are usually estimated to have a life of from 35 to 50 years and brick and stone from 50 to 100 years. Actually, many, if not most, buildings would have an indefinite life through continuing repair and upkeep, if it were not for obsolescence, that is, inadequacy because of style change, or failure to meet changing improved standards of design, or similar reasons. Therefore every depreciation rate assumption for buildings assumes reasonable upkeep but contains an indeterminate mixture of obsolescence. This latter factor has been particularly important in causing the retirement of commercial structures in American cities. Depreciation and obsolescence are often evidenced by rents that have declined to a point where they fail to, or little more than, cover running expenses, so that the building has lost its investment, or economic, value.

2. *Neighborhood changes.* The neighborhood in which the property is situated may deteriorate. This possibility is one that should be carefully noted at the time the mortgage is taken, for values may be rapidly affected by the introduction of stores

or factories into a residential section, by changes in the character of the population, by changes in the means of transportation, or by the opening up of new residential areas so that old ones lose their attraction.

3. *The business cycle.* Another type of risk to which the mortgagee is subject arises from the fluctuations of the business cycle. Alternate periods of good and poor business will be reflected in the activity of the real estate market and the prices at which property sells. During good times sales will be numerous and values will be firm or rising, while the reverse will be true in times of depressed business. The volume of building will also tend to vary with the cycle. A strong tendency exists to overbuild during periods of easy money and advancing prices, which makes it necessary for the investor in mortgages to follow carefully the trend of economic conditions. Appraisals should be made on a more conservative basis and loans restricted during the later stages of a building boom. It is particularly true at such times that the older buildings represent the poorest types of property on which to lend, because of the rapid depreciation in value caused by the competition of modern structures. For this reason the most conservative real estate mortgages are those secured: (1) by new residential property with modern conveniences, situated in a well-adapted neighborhood; (2) by up-to-date apartment houses, well constructed and well situated; or (3) by modern business structures on sites that are well adapted to their intended use.

4. *Price level movements.* Closely related to the business cycle, but nevertheless a factor requiring separate consideration because of its occasionally independent movement, is the general price level. Its importance lies in its relation to the prices of materials and wages which make up building costs. In addition to the fact that declining prices tend to depress general business activity and consequently the ability of tenants to pay rent, they make it possible for buildings to be replaced more cheaply and so reduce the security behind mortgages generally.

Construction costs ordinarily move in the same direction as general prices, but somewhat more slowly because of the substantial wage factor. Some idea of the relative importance of changing construction costs may be obtained from the following table of index numbers:

COST OF BUILDING INDEX NUMBERS*

(1913 = 100)

1914.	89	1924.	215	1934.	198
1915.	93	1925.	207	1935.	195
1916.	130	1926.	208	1936.	206
1917.	181	1927.	206	1937.	235
1918.	189	1928.	207	1938.	236
1919.	198	1929.	207	1939.	236
1920.	251	1930.	203	1940.	242
1921.	202	1931.	181		
1922.	174	1932.	151		
1923.	214	1933.	170		

*Engineering News Record.

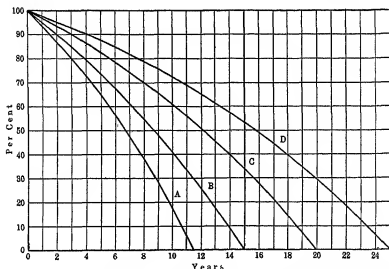
Methods of safeguarding mortgage loans. The first step in safeguarding a mortgage loan lies in a program of debt repayment that will maintain at least the original safety margin by reducing the mortgage at as rapid a rate as the value is likely to decline. A number of the potential value-reducing factors just outlined are uncertain. Depreciation alone partakes of the inevitable. Loan amortization must at least equal this latter factor. Unless the original margin was more than was necessary, some additional amortization is desirable to cover the less predictable possibilities. A rate of 4 or 5 per cent per year would probably be regarded by conservative lenders as minimum for any save loans that had excess margin initially. The need for amortization, then, will vary with original margin of protection, the age and type of building, the outlook for neighborhood changes, business conditions, and construction costs.

In order that the rate of loan reduction under various common loan plans can be studied, the accompanying table and Figure 20 show several arrangements: (A) a loan for eleven years and seven months at 6% interest, and 4½% loans running for (B) 15, (C) 20, and (D) 25 years. In all of these plans the monthly payments consisting of interest plus principal are equal over the whole period. The first (A) and shortest period was substantially that used by many savings and loan associations prior to the advent of the F.H.A. loan (1934), which will be discussed shortly. The borrower paid one per cent each month, and with interest at 6 per cent per year his debt was reduced 6 per cent during the first year. As the principal was reduced the interest decreased and the portion of the monthly payment devoted to principal reduction grew. The similarly arranged plans for 20 (C) and 25 (D) year loans at 4½ per cent interest

represent the conditions of maximum maturity for F.H.A. loans. Although the borrower averages 4 per cent per annum on principal with the 25-year loan, the equal payment arrangement results in the amortization averaging only 2.4 per cent in the first five years.

PERCENTAGE OF ORIGINAL LOAN UNPAID UNDER
SEVERAL EQUAL MONTHLY PAYMENT PLANS

At end of year	6% 11 yrs. 7 mo.	4½% 15 years	4½% 20 years	4½% 25 years
1.. .. .	93.83	95.22	96.84	97.78
2.. .. .	87.28	90.23	93.53	95.46
3.. .. .	80.33	85.00	90.07	93.04
4.. .. .	72.95	79.53	86.46	90.50
5.. .. .	65.12	73.81	82.68	87.84
10.. .. .	18.07	41.04	60.99	72.64
15.. .. .	0.00	0.00	33.84	53.59
20.. .. .	...	...	0.00	29.75
25.. .. .	...	...	...	0.00



A = 11 yr. 7 mo.—6%; B = 15 yr.—4½%; C = 20 yr.—4½%; D = 25 yr.—4½%.
Horizontal rulings at 5% intervals. Annual vertical rulings

Figure 20—Percentage of Loan Unpaid at End of Each Year, Combined Monthly Payments of Principal and Interest Being Constant.

It is also important that an annual check be made to see that all taxes and local assessments are properly paid. Such obligations constitute a prior lien on the property, preceding even the first mortgagee's claim. In most states real estate can be sold for unpaid taxes after legal notice of the proposed

sale has been given; but the owner or mortgagee is given a period in which to redeem by payment of the tax plus additional expenses. In order to prevent such a sale, the mortgagee should make an annual check to be sure that taxes have been properly paid.¹¹ He may make such a check by requiring the mortgagor to show his tax receipt at the time of his interest payment following the assessment of taxes or by checking with tax collector's records.

It has already been suggested that the mortgagee should keep in his possession adequate fire insurance on the property to cover his mortgage, and that a suitable mortgage clause should be indorsed on all policies. It is necessary to keep an adequate record of this insurance in order to guard against any lapse in the policies. This check is usually made by means of a tickler file, in which a notice is placed for each mortgage, showing, in the order in which they require attention, the dates at which any of the policies held in connection therewith expire.

Second mortgages. Second mortgages on improved urban real estate were formerly common in certain sections of the country. Their use and popularity have fluctuated with conditions of the real estate market. Their investment attraction lay in their high yield, but their subordinate position made them subject to the considerable risk of total loss in the event of trouble. They were customarily taken by a vendor of a property, often a speculative builder, when the buyer made so small a down payment that the conventional first mortgage would not finance the balance. In such cases a second mortgage would be given to make up the difference.¹² Since usury laws generally limited the rate of interest, the seller would make the price of the real estate sufficiently high so that he could afford to sell

¹¹In some localities it is customary for the tax collector to notify the mortgagee in writing of his intention to sell the property, thus giving the mortgagee an opportunity to pay the tax and start foreclosure. In other cases legal notice of the proposed sale consists of newspaper advertising and the posting of a notice of sale at some public place.

¹²Another device was the "split mortgage." A single large first mortgage, say for 75 per cent of the purchase price, was given by the purchaser of a home. An amount equal to 60 per cent was then sold to a conventional investor and the 15 per cent balance retained by the original mortgagee, usually a mortgage or finance company, which subordinated its portion of the loan to that sold. With an interest rate of six per cent on the total mortgage, the rate paid to the holder of the preferred 60 per cent might be 5½ per cent, leaving a balance considerably in excess of the nominal 6 per cent for the holder of the subordinated portion, which latter would presumably be amortized over a short period.

the second mortgage at a discount which would raise the yield to a level commensurate with risk. Or, if the borrower dealt directly with a mortgage house, substantial commissions might achieve the same end. Total costs often ran to 15 and 20 per cent per annum. This total included the gross profit of the mortgage broker and a yield to the investor of from 8 to 10 per cent. However, such loans were only for a fraction of the total borrowing and were ordinarily amortized over a three- to five-year period.

With the introduction of Federal Housing Administration insured loans, which permit mortgage loans to run as high as 80 and 90 per cent of the value of the property and prohibit the simultaneous use of a second mortgage, the latter has tended to disappear from the home finance field.

Federal Housing Administration insured loans. Under Title II of the National Housing Act (1934), a plan of mortgage insurance was created for one- to four-family houses. The insurance is available only for mortgages made by approved lending institutions. These are for the most part life insurance companies, savings and loan associations, banks, both savings and commercial, and mortgage companies. Mortgages are eligible if they meet the standards of the Federal Housing Administration and are not for more than 80 per cent of the value of property nor more than \$16,000. These loans must be completely amortized over a period of not more than 20 years. Newly constructed, owner-occupied homes of smaller value are permitted even easier terms.¹³ Mortgages on new houses may run to 90 per cent of the valuation where valuation does not exceed \$6,000 or may be for 90 per cent of the first \$6,000 of value plus 80 per cent of the balance of properties worth from \$6,000 to \$10,000. Such 90 per cent loans may run for a maximum term of 25 years instead of 20 years. The statistics of operation published by the Federal Housing Administration show that the bulk of the mortgages insured have been made either at, or very close to, the most lenient terms permitted.

¹³ To aid in the financing of housing for workers in expanding defense industries, Title VI permits 90 per cent mortgages to builders who may either rent or sell the property. These loans have a maximum term of 20 years and are limited to \$4000 for a single family up to \$10,500 for a four-family dwelling. Other requirements differ in detail from those for standard loans. They are restricted to areas in which the President finds that "an acute shortage of housing exists or impends which would impede national defense activities" and where there is a reasonable assurance that a permanent need for the dwellings will exist after the emergency has passed.

All loans made are repaid during the life of the mortgage on a monthly repayment plan under which the sum of the interest and principal makes a constant total each month. The borrower is also required to deposit an amount each month to cover property insurance and taxes. Originally, the maximum interest rate was set at $5\frac{1}{2}$ per cent but this rate has been reduced to $4\frac{1}{2}$ per cent (since 1939), although some lenders make a rate slightly lower. In addition to the interest, the borrower is currently obligated to pay a mortgage insurance premium equal to one half per cent per annum of the unpaid principal.

These mortgage insurance premiums are paid into the Federal Mutual Mortgage Insurance Fund. Until 1940, the operating expenses of this fund exceeded income, which consisted chiefly of insurance premiums and appraisal fees, so that the fund was made up of allocations of capital from the Reconstruction Finance Corporation. If an insured mortgage is defaulted, the mortgagee forecloses and turns the property over to the administrator of the fund, who issues debentures that run for a period longer than the mortgage.¹⁴ The Federal Government has agreed to guaranty these debentures and so, in effect, stands behind the insured mortgages.

However, the fund is permitted to issue debentures only up to \$75 or 2 per cent of the unpaid mortgage balance, whichever is less, for foreclosure costs incurred by the mortgagee. In view of the high foreclosure costs in certain states, such as Illinois and New York, losses equal to a substantial percentage of the loan are possible. It is true that a certificate of claim is issued to the mortgagee for expenses incurred in connection with foreclosure that are not covered by debentures. Such certificates are paid out of any "profit" realized upon the sale of property. In view of the slender original margin of protection and the slow amortization of principal, the certificates are likely to have value only in rare cases.

Under Title I of the same act, low cost housing was encouraged by offering mortgage insurance up to \$2500 for loans running up to 15 years with down payments as low as 5 per cent of the valuation of land and improvements. Under another section (207) of the act, insurance, to be handled by a separate fund, was insti-

¹⁴ Debentures cover principal on the date foreclosure proceedings are instituted plus payments for taxes and hazard insurance. They are dated and bear interest from the date foreclosure begins. Currently, they pay 2% per cent interest and enjoy certain tax exemptions.

tuted for large-scale rental housing projects. A loan, in order to be eligible, must not exceed \$5,000,000, nor \$1,350 per room. These loans are not to exceed 80 per cent of the valuation of the mortgaged property and must provide for amortization over a period set by the administrator. The most frequent term has been 26½ years, and after August 1, 1939, the interest rate was set at 4 per cent.

Originally, this F.H.A. plan of mortgage insurance was initiated to stimulate construction during the depression. However, the expiration date for its provisions was extended from time to time. Because such easy financing makes for real estate and building activity, various groups are intent upon making the institution permanent, ostensibly to encourage home ownership. It is regrettable that the encouragement should be made to rest upon a basis which the experience of mortgage lenders would indicate is so insecure as to be almost certain to cause a wholesale loss of homes in the event of depression, as well as substantial losses to the Government. Moreover, such easy terms will have a strong tendency to overstimulate building if continued through a period of business optimism. Factors which could favor the possible success of the plan are: (1) a period of rising commodity prices, or inflation, which increased the valuations behind insured mortgages; (2) a long period of favorable conditions, during which the insurance funds were able to build up reserves; (3) amendments to the law or changes in administration that eliminated or reduced weakness resulting from inadequate margins and amortization; and (4) stress upon the personal credit of borrowers, which might counterbalance some weakness in the security. It will be noted that the personal credit element is absent in rental housing projects and its absence would lead one to expect a less favorable loss experience than for small loans on owner-occupied homes.

Real Estate Bonds

Bonds secured by real estate mortgages. As the size of the mortgage increases, the more limited does its market become. Only to the large life insurance companies, certain banks, and a few wealthy individuals can very large mortgages be sold. The alternative is to offer a bond issue secured by the mortgage in question. The building boom of the 1920's, marked by an unusual volume of office buildings, apartment houses, and hotels,

created a flood of such real estate bond issues. These issues might also have been expected to give the investor greater marketability as well as a more convenient unit of purchase. Actually these issues had only a limited over-the-counter market supported by the issuing investment bankers.

Nature of construction loans. Most of these large issues were construction loans, which, as the term implies, are loans undertaken for the construction of a new building. The customary plan of procedure is for the owner of the building, or the borrower, to arrange with the lender for an agreed amount. A mortgage is immediately placed on the premises to secure the advances to be made under the loan agreement. The entire sum is not paid at once, but advances are made from time to time as construction progresses. Ordinarily three payments are made: one when the frame is up and the roof on; another when the rough plastering and plumbing are finished; and the third when the building is completed. The amounts of these advances are so computed as to assure the lender that the borrower will have at all times a proper investment in the property. In order to make sure of this, payments may be based on architect's or contractor's certificates, which in turn are based on an actual inspection of the property and on vouchers shown for material and labor that have gone into construction.

The best protection that can be given to the lender in construction loans is the existence of a contract which calls for the construction of a building at a specified price, and under which the contractor agrees that, in return for the total payment, he will complete the undertaking in accordance with the plans and specifications. This arrangement assures the lender that the owner is in a position to make his investment in the undertaking and furnishes evidence as to the actual cost thereof. In arrangements of this kind it is necessary that the contractor furnish a bond for the performance of his contract. Thus all parties concerned are protected against any default on the part of the contractor arising through unforeseen difficulties, such as excessive costs, bankruptcy, and the like.

Many details must be carefully handled in the making of such loans. For example, it is generally necessary to see that payments go directly to contractors and that proper releases are secured for the payment of material bills and labor, lest "mechanics' liens" arise which may take priority over the mortgage lien. The discussion of these details lies beyond the scope

of this work, but some of the more general hazards will be mentioned in our final summary.

Importance of accurate appraisals. In an analysis of the investment merit of bonds issued against the deposit of a single large mortgage, practically the same matters should be considered as were suggested in connection with individual real estate mortgages. Since it is usually impossible for the bondholder himself to make the appraisal, he is obliged to rely on the judgment of one or more firms or individuals who specialize in this kind of work. The firm that undertakes the sale of the bonds should have independent appraisals made by one or more responsible real estate or appraisal firms who are in a position to know property values in the neighborhood in which the building is located, as well as construction costs. Unfortunately such appraisals have not always been independent nor have they been made by responsible parties. A conservatively financed proposition will ordinarily provide for a first mortgage bond issue not in excess of 60 per cent of the appraised value of the property.

Likewise it is important that interest and amortization charges should bear a reasonable relation to estimated net rentals. Net income is expected to equal at least two times charges. The importance of earnings in relation to charges is apparent when one considers that it is the earning power of such property that determines its real value. If the property is unable to earn enough in the hands of its original owners to provide for interest and amortization charges, it is unlikely that the situation can be materially improved under different ownership. In the event of default, the investor is likely to find little, or only partial, relief from foreclosure proceedings.

Elements of risk in bonds secured by mortgages on large commercial buildings. In large mortgages of this kind, there are elements of risk not found to the same extent in smaller mortgages on strictly residential property. In the first place, the desirability of erecting an office building, a hotel, or other commercial building on a given site is a matter that can be predetermined only on the basis of rather accurate judgment. Regardless of the cost of the structure, therefore, a substantial speculative element exists until the actual operation of the building proves its suitability to the site and bears out the estimates of its promoters, by returning a substantial operating profit. Otherwise the mortgage bonds issued thereon can hardly be considered a satisfactory investment, regardless of original

costs. Furthermore, subsequent changes in the character of the business community may at any time reduce the earning power of the building and thus impair the bondholders' equity.

During the 1920's there was a tendency for speculative promoters to erect office and commercial buildings in the larger cities and to finance such operations by issuing first mortgage bonds up to nearly 100 per cent of the original cost of the enterprise. Such bonds were sold by houses interested in the immediate profits derived from their sale, rather than in the ultimate success of the enterprise. Of course, the appraisals submitted to the purchasers of the bonds were always higher than actual cost, since they were based on anticipated rentals. The mere fact that the bond was labeled a "real estate" bond and "first mortgage" was sufficient to insure its sale. It is, of course, rarely possible for the investor personally to check the appraisal. For this reason, before purchasing bonds of this type it is extremely important for him to consider carefully the experience and qualifications of those sponsoring the enterprise.

Leasehold mortgage bonds. The practice of erecting large metropolitan buildings upon leased ground has at various times been popular. The practice results in a type of security that requires the closest scrutiny by the investor.¹⁵ Under this arrangement the builder makes no investment in land and he may finance a substantial part of the building cost by an issue which will be known as leasehold mortgage bonds. In the event of foreclosure the bondholder would take over the building and the lease, but the obligation to pay the stipulated ground rent would continue. Failure to pay such rent would break the lease, and the owner of the ground would then be entitled to the building and any other improvements made on his land. The result is that the land owner has a first claim upon earnings for the ground rent, whereas the first mortgage on the leasehold (building and lease) occupies a position like that of a second mortgage.

The lessee is obligated as a rule to pay not only ground rent but also the real estate taxes. The tendency in many communities for such taxes to increase has created a burden that has weakened the position of many leaseholds. Increases in the value of the land accrue to the benefit of the lessor eventually, with the expiration of the lease. If, however, the lease runs

¹⁵ See Allen, Irving, "Leasehold Bonds and Foreclosure as a Protection," *Annalist*, July 16, 1926, p. 76.

for a long period, and the ground rent does not change, increases in ground value should be reflected in higher rentals from the tenants of the building, which will increase the security of the leasehold mortgage. Sometimes the lease provides for an increasing ground rental, which may weaken the position of both the owner of the leasehold and the leasehold mortgage bonds.

Safeguards in leasehold mortgages. On account of the inherent weakness of mortgages secured by leasehold property it is important for the investor to insist on very strict safeguards in connection with the drawing of the lease. In the first place, the lease should run for a length of time sufficient to enable the retirement of the entire mortgage before the expiration of the lease. Many such leases run for 99 years, although frequently the duration is for a shorter period, say 21 years, with a renewal clause inserted, which gives the lessee the privilege of extending the lease under certain conditions. The ground rent may be made the subject of arbitration. The length of the lease will, of course, determine in part the rate at which the mortgage should be amortized. It has already been suggested that, in order for the mortgagee to be given adequate protection, the entire loan should be paid off before the lease expires.

While it is true that leasehold mortgages are less desirable than mortgages on property owned in fee, it should not be assumed that all leasehold mortgages are undesirable. Where the terms of the lease are equitable, where there is a large equity in the property following the leasehold mortgage, or where the property is likely to increase, rather than decrease, in value, the leasehold mortgage may be adequately secured and thus provide an excellent medium for investment. Occasionally, where the lease runs for a very long period and the ground rent was fixed at a time in the past when values were low, the prior charge may be so small that the leasehold mortgage may enjoy an extremely strong position, much as a second mortgage would if it were preceded by only a very small first mortgage.

Advantages of provisions for early retirement. To overcome the greater risk of large mortgages and leasehold mortgages, it is the practice to insert in the mortgage indenture provisions calling for rather rapid amortization of the principal. Retirement may be effected either through annual payments into a sinking fund or by arranging for the issue to mature serially. The typical real estate bond secured by a single mortgage on a commercial building usually runs for not more than twenty years,

and it is generally protected by sinking fund or serial provisions, more usually the latter, which provide for at least partial retirement by the time of the final maturity. In view of the rapid loss of value in modern buildings in large cities, very substantial, if not complete, retirement within a fifteen- or twenty-year period would seem logical. Many buildings which might reasonably have a life of fifty years in so far as physical depreciation is concerned are retired in half that period as a result of obsolescence. A large institutional mortgage holder who purchases a mortgage that requires renewal every few years is in a position to guard against loss of value, but the buyer of a long-term mortgage bond must rely upon the terms of his original contract to guard against that hazard. Many issues that have advertised the serial maturity feature as "increasing the security from year to year" have actually provided for amortization at so slow a rate that it would barely keep pace with ordinary physical depreciation, not to mention possible obsolescence.

In recent reorganizations the tendency has been to create sinking funds contingent upon earnings. Usually the payments are made to come after the stipulated interest, or a portion of it, is paid. The indenture of the Hotel Lexington, Inc. (New York), bonds provides that all the net income after income bond interest at 4 per cent shall be used for sinking fund until the original \$4,000,000 of bonds has been reduced to \$2,400,000, after which sinking fund is optional with the directors.

To insure the payment of sinking fund even though earnings for the reorganized company recover but moderately, some indentures place such payments on a parity with the interest claim. The Five Twenty Michigan, (Inc.), (Chicago) refunding mortgage leasehold income 5's provide in their indenture that only three fourths of available net income shall be used for interest, and that one fourth shall be used for sinking fund until the latter payments reach a stipulated maximum amount, which is gradually increased over the period 1936 to 1952.

Two points are peculiar to these reorganized real estate bond issues: first, the amount available for interest and sinking fund is the net income *before* depreciation; and second, there is often provision for special items which may be deducted in computing *available* net income, such as working capital, previous reorganization expenses, and minor capital expenditures. Since the replacement of the building is a distant event, cash is not retained in the corporation treasury to counterbalance depreciation. It

is characteristically disbursed as income payments to the securityholders or used for the retirement of senior issues.

Real estate bonds issued by mortgage companies. Still another type of real estate bond is that issued by mortgage companies. Real estate bonds issued by such companies differ materially from those secured by a mortgage on a single unit in that the former are secured by the pledge of a number of smaller mortgages on residential or less pretentious business properties which have been acquired by the mortgage company and turned over to a trustee. That is, the mortgage company proceeds to lend money on such applications as it receives them in much the same way as the savings bank or the individual operator. As it uses up its available funds in this way, it turns over to a trustee a group of mortgages to be used as collateral against an issue of bonds. Such bonds, therefore, are secured by a diversified lot of first mortgages, which are owned by the mortgage company, but which are hypothecated with the trustee as security for the bond issue.

The apparent advantage of this type of bond is in the fact that the underlying collateral is highly diversified, the amount involved in any one mortgage, therefore, being relatively small.¹⁶ An occasional mistake in judgment or an overappraisal is thus a relatively insignificant matter. Furthermore, mortgage companies issuing such bonds frequently operate in many different cities, even extending their operations over different states. In this way geographical diversification is likewise secured. Another element of security may be found in the stockholders' investment in the business, which protects the bonded debt.

While the record of such mortgage companies has been satisfactory enough in ordinary times, it has not been so in times of special stress. One reason for this failure to survive strain probably lies in the relatively small stockholders' investment which protects the bondholders. It is interesting to note that certain other institutions which invest heavily in mortgages—namely, the mutual savings banks, the life insurance companies, and the building and loan associations—have the advantage of being able

¹⁶ An example of such a company is the Mortgage Security Corporation of America (see *Moody's Manual of Investments*), incorporated in 1915. This company purchased first mortgages on completed homes or income-producing properties and issued its own bonds, which were additionally secured by a stockholders' investment. Some of its bonds were guaranteed by the National Surety Co. Defaults occurred in 1932-33. The guarantor company had to be reorganized.

to reduce the rate of return to their members when their own income from mortgages is curtailed and losses have to be written off.

Guarantee by mortgage company. Sometimes the mortgage company guaranteed the principal and interest of mortgage bond issues on individual buildings or mortgage certificates issued against a pool of mortgages. The latter type of issue was known as "collateral trust certificates," "mortgage collateral bonds", or "mortgage participation certificates." It was, in effect, an investment trust in first mortgages. It offered convenient denomination, management, and some marketability. The security was diversified as compared with the individual mortgage investment. However, it was more difficult to obtain any adequate information about the nature and quality of the security than it was with single mortgages.

Guarantee by surety companies. Another form of security offered was a guarantee of real estate issues by an independent surety company, which was typically engaged in other forms of insurance as well. The National Surety Company and the Maryland Casualty Company, among others, were prominent as guarantors of this type. Under one plan, as used by the former company, the surety company placed its unqualified guarantee on every insured mortgage certificate issued to the public. Under a second plan, as employed by the latter company, a policy was issued which guaranteed the full payment of principal and interest when due on each mortgage deposited with the trustee.

A question is raised as to which of these two methods of guarantee offers the best protection to the security holder. In practice, there is probably little choice one way or the other. The second form, which was used by the Mortgage Company of Maryland, had the advantage of requiring the Maryland Casualty Company to assume many small risks, as compared with one large risk, since a separate policy went with each underlying mortgage. Furthermore, this method undoubtedly kept the insurance company in close touch with the type of mortgage assumed by the Mortgage Company. Any substantial number of defaults came immediately to the attention of the mortgage company. Although the former plan, adopted by the Mortgage Security Corporation, appeared to offer greater security, in that the certificate holder looked directly to the surety company in case of default, nevertheless it required the surety company to

assume a large individual risk, and did not require, *per se*, any attention on its part until a default in the entire issue had occurred.

The very severe blow dealt by the real estate decline after 1929 demonstrated the relative merits of the various methods of guarantee. While no casualty company escaped the ravages of hard times, the financial strength of the independent surety company enabled it to make a better record on its guarantee, although sacrifices on the part of bondholders and a readjustment were necessary.¹⁷ The one important weakness of this form of guarantee supplied by a sound company with a number of lines of insurance appears to lie in the hazard of a widespread decline in real estate brought about by adverse economic conditions. The resulting liabilities which are created may be so large in comparison with the net worth of the company, that failure may result. The situation is analogous to the conflagration hazard of the fire insurance company, except that the modern company in that field has so diversified its risks geographically that no one disaster can threaten all of its risks to the extent that is possible in the mortgage insurance field. In checking a guarantee, then, the potential liability of a guarantor should be compared with his net worth.

The disadvantages which the mortgage company, as compared with the insurance company, suffers as a guarantor are: (1) the lack of an independent point of view with respect to its lending policies; (2) a relatively small stockholders' investment in relation to the liability assumed; and (3) the usually complete investment of its resources in its operations—that is, mortgages—so that substantial liquid resources to meet an emergency are ordinarily absent.

Land trust certificates. A type of real estate investment, with unique features, is the land trust certificate.¹⁸ While any land can be placed in trust, and beneficial ownership divided into shares by the issuance of certificates, the land trust certificate is typically employed when land is leased for a long period to another for use and improvement. The legal structure on

¹⁷ For an account of the refunding plan of the Maryland Casualty Company (Md.), see *Moody's Manual of Investments: Banks, Insurance Companies, Investment Trusts, and Real Estate, Finance, and Credit Companies* (New York: Moody's Investors Service, 1934), pp. 1907-1908; for the reorganization plan of the National Surety Co., see *ibid.*, 1935, pp. 1400-1402.

¹⁸ See Allen, Irving, "The Land Trust Certificate—A New Development," *Annalist*, August 6, 1926, p. 171.

which this type of investment is based is relatively simple. The legal title to the land, subject to the lease, is conveyed to a trustee under an indenture or deed of trust which states that the trustee shall hold such title for the benefit of the certificate owners.

Under the trust agreement the equitable ownership of the land is divided into a number of equal parts, and a trust certificate is issued showing the number of parts owned by the individual holder. The actual ownership of the land is, of course, subject to the right of the leaseholder, who continues in possession as long as he pays the stipulated rent. In some cases there will be a clause in the lease providing that the lessee may purchase the land outright at a price that ordinarily will show a profit to the certificate holders. This feature has the advantage of avoiding an excessively long investment, and at the same time it provides opportunity for an additional profit, similar to the premium paid in the event of a bond redemption.

If the lessee fails in any of the covenants of the lease, the equitable owners of the land—that is, the certificate holders—may eject him and thus come into possession of what may prove to be a valuable piece of real estate, especially if the lessee has erected suitable buildings on the leased land. From the certificate holders' angle, therefore, it is desirable that some sort of development be undertaken on the land. One of the conditions of the lease, in fact, may be that, within a specified time, improvements shall be made. It will be noted here that the real danger in the event of default falls on the first leasehold mortgage bondholders, who have a leasehold mortgage on the improvements. The position of the certificate holders, who are the lessors in effect, thus underlies that of the bondholder.

The question of appraisal is, of course, important in the case of land trust certificates, although the dangers of overappraisal are somewhat limited by the presence of the lease. In fact, the dangers of overappraisal to the certificate holder are much less than in the case of the mortgage bonds. If the lessee has agreed to undertake the payment of an annual rental sufficient to provide a return of from 5 to 6 per cent on the certificates issued under the lease, and if he has proceeded to finance a structure on the land through the issue of leasehold bonds, it is at once apparent that the entire question of an appraised value for the land has been subordinated to some extent. However, it is possible that in time the improvement may become obsolete and

the land value may decline through adverse neighborhood changes. A moderate error in the way of overappraisal will injure chiefly the owners of the building or those who hold the leasehold bonds.

Perhaps the greatest danger to the holders of land trust certificates lies in the failure of the lessees to begin the erection of buildings on the land within a reasonable period of time, as is sometimes provided in the lease, or in their failure to complete the project. This risk, however, can be partially eliminated if the lessee is required to deposit funds for the cost of construction with a trustee, such funds to be disbursed as the building is erected. Where such precautions are not taken, the certificate holders may find themselves in possession of land with no immediate earnings.

The land trust certificate, although by no means a new type of investment, has never been widely utilized in this country. However, increased use of the device during the 1920's suggests its utility when large metropolitan buildings are being erected on valuable ground. These certificates can be used as a means of financing the actual ownership of land.¹⁹

¹⁹ The following issues of land trust certificates will serve to illustrate some of the features already discussed in a general way:

1. Michigan Office and Theater Building. This building, which is located at the corner of Middle and Clifford Streets and Bagley Ave., Detroit, Michigan, was financed in part by the issue of 4,500 equal, undivided shares of ownership in the fee simple title to the land to be occupied by the building. These certificates were sold at \$1,000 each and were entitled to \$55 interest per annum. The total rental under the lease executed between the trustee and the Detroit Metropolitan Company provided for the payment of all taxes and \$247,500 annual rental. The land had an appraised value of \$4,645,960. The land and buildings combined had an appraised value of \$8,157,783. Net income available for ground rent charges under the lease was *estimated* at \$468,519, against charges of \$247,500. Certificates were sold on a 5½ per cent basis. Under the terms of the lease the lessee retained the option of purchasing the entire property by paying to the trustee an amount sufficient to retire the certificates at \$1,040 if such option was exercised by February 1, 1932; \$1,030, if exercised by February 1, 1937; and thereafter \$1,020, and accrued rental in each case. For an account of the suit in which these certificate holders acquired full title to the whole property, extinguishing the interest of the leasehold mortgage bondholders, see *Moody's Manual of Investments, Banks, etc.*, 1940, p. 1027.

2. The Bankers Building of Chicago. This building, which is located at the southwest corner of South Clark and West Adams Streets, was financed in part by the issue of 5,000 land trust certificates representing 5,000 undivided parts of the equitable ownership of the premises. The land, consisting of 22,250 square feet, had an appraised value of \$6,650,262; the 41-story office building was appraised at \$6,972,000. Thus, the total appraised value of land and building

Current developments, and summary. In summarizing the recent record of real estate loans, a sharp distinction must be made between real estate bonds and individual mortgages. Although the bonds and mortgages are superficially similar, their records have been markedly different. The bonds have suffered much more heavily.²⁰ The weaknesses which have been made apparent were as follows:

1. *Bad appraisals and excessive loans.* This evil was partly due to the lack of sound independent appraisals. Those making the supposedly independent valuations were not infrequently closely bound by interest, if not by actual affiliation, to the parties promoting the construction or to the specialized investment banking houses that sponsored the bond issues. Another difficulty lay in the willingness of the appraisers to ignore actual costs and base valuation on generously estimated future rentals. Even granted that such rentals might have been in line with conditions of the moment, experienced appraisers would have recognized that, whenever rentals rise so high as to produce values much in excess of the cost of production, a volume of building is likely to follow which will drive rentals, and consequently values, down to a normal relation with cost of construction.

2. *Construction loans.* The bulk of the real estate bond issues were based on business, hotel, and apartment properties that were to be constructed from the proceeds of the loan. The necessary absence of any record of income and expense made easier the misjudging of values.

3. *Excessive and unsound building* was a natural outcome of the easy money that was available as a result of general prosperity and of the vigorous promotion by those selling the bond

was \$13,822,262. The annual rental under the lease was \$275,000, which allows \$55 per annum for each certificate holder. (The lease further provided for erection of the Bankers Building, to be started within six months of sale of certificates and furnished according to specifications.)

A \$5,000,000 issue of first mortgage leasehold bonds was sold, that followed these certificates. The leasehold mortgage bonds in this case clearly occupied the position of a second mortgage, at least so far as the practical aspects of the situation were concerned, as shown by the subsequent record of the issue.

²⁰ Ernest A. Johnson in a study of 1090 long-term real estate issues totalling over four billion dollars for the period 1919-1934 found 13.6% called, 12.5% matured. Of the balance outstanding at the end of the period 83% were in default. On the basis of bid prices for April, 1935, defaulted issues showed an average "recoverable value" of 72.4%, defaulted issues of 24.6% of par value. "The Record of Long-Term Real Estate Securities," *Journal of Land & Public Utility Economics*, Feb. 1936, pp. 44-48.

issues. Houses selling real estate bonds found it easier to sell than to acquire sound issues. Operators were more easily available to undertake construction when the amount which could be raised by a first mortgage bond issue rose closer to 100 per cent. It should be noted that the creation of surplus rental space by excessive building inevitably tended to increase vacancies to an abnormally high figure for even soundly conceived and well-managed structures already in existence.

4. *Business depression.* As the depression became more acute in the years following 1930, difficulties increased. However, it is not improbable that as much as a fourth of the outstanding real estate bond issues were in default as early as the fall of 1930.

5. *Difficulties of reorganization with a bond issue.* With bondholders scattered, united action to obtain prompt and economical reorganization was frequently impossible. Prolonged and costly receiverships resulted. Holders of individual mortgages still have the advantage of being able to take more prompt action in the event of default and to adapt their course to the requirements of the particular situation.

Individual mortgages, while suffering greatly in the recent past, have had a much superior record. The chief reasons may be summarized as follows:

1. *Type of buyer.* Where real estate bond issues were chiefly absorbed by individual investors and to some extent by small banks, mortgages were acquired for the most part by the institutional type of investor, such as the life insurance company, the savings bank, and the savings and loan association. Because of the greater experience and skill of the institutions, more security was required from borrowers. Even individual investors in mortgages were likely to confine purchases to local property about which they had more knowledge than the average bond buyer had of the security which he was purchasing.

2. *Type of property.* Bond issues were generally secured by commercial property—that is, business buildings, hotels, and rented apartments. Such property is more difficult to appraise and probably more variable in value than the owner-occupied home, which is the basis for a very substantial part of the outstanding mortgages. The home owner is much more likely to make an effort to hold his property, even when his equity is little or nothing, than is the landlord of a purely commercial property.

The former supports his mortgage out of his personal income; the latter supports his bond issue from the rentals of the property.

3. *Relative ease of adjusting default.* In the event of default, the holder of an individual mortgage is in a position to make a quick adjustment by waiving principal payments or by reducing the interest rate according to the merits of the individual situation, in order to prevent foreclosure and its attendant ills. Default upon either interest or serial maturities of a bond issue would almost inevitably lead to a receivership, and to considerable negotiation and expense before a reorganization could be effected.

4. *Aid from Home Owners' Loan Corporation and Federal Farm Mortgage Corporation.* Holders of mortgages were also aided by the operation of these two Government-supported organizations, which were designed to rescue the small home owner and the farmer in distress. Long-term loans of the amortization type were offered at low interest rates by these corporations where inability to pay had been shown by default on interest or principal. Instead of cash, bonds that were readily salable were offered to the mortgagee for his defaulted investment. Often the mortgagee was willing to compromise for less than the face of his debt, to obtain an immediate settlement in marketable bonds. The desirable quality of these bonds will become more apparent after a description of them is given in the next chapter.

Current mortgage situation. The heavy losses suffered in the real estate bond field make any revival of the large scale financing of the 1920's unlikely for the present. The only possible parallel appears in the high percentage F. H. A. insured loans made for large scale rental housing projects. The experience of this scheme remains to be written. In the ordinary mortgage field, a healthy revival of interest has taken place—stimulated by the dearth of new investments to utilize the growing savings of the late 1930's. Moratorium laws still exist in a number of states, however, to prevent the collection of principal, and so emphasize one of the risks in this field.²¹

²¹ These laws, still in force in thirteen states on June 30, 1939, in order to protect home owners and farmers, generally suspended the right of foreclosure under certain conditions. Refinancing of maturing mortgages was impossible under the crisis conditions of 1932-1933. In a number of states, such as New York, the mortgagor could not be required to make any payments on principal so long as he kept up interest, taxes, and repairs. *Report of the Federal Home Loan Bank Board, 1939, p. 44.*

Home financing received a further impetus from the inauguration of F.H.A. mortgage insurance. The advantages and the weaknesses of this innovation have already been outlined. The possibility of loss to the investor in spite of the Government guarantee of the obligations of the insurance fund, has also been indicated. Even more serious is the possibility of disorganization of the real estate market through over encouragement to speculative building. This threat has become more significant since the system, originally founded as an emergency depression measure to promote construction and employment, appears not unlikely to become a permanent feature of the mortgage market.

Because mortgages make rather large units of investment and require care, they are more fitting as institutional than as individual investments. Both national and local financial institutions have provided an excellent market. Those institutions which feel a need for possible liquidity now have access to the Federal Home Loan banks, which serve member mortgage lending institutions, such as the savings and loan associations, by offering them lending facilities much as the Federal Reserve banks serve commercial banks. However, mortgages are still most suitable for the relatively permanent institutional investor.

The trend to regular loan amortization, if on an adequate scale, should do much to protect both investors and borrowers. Quickened interest in newer types of housing may create more rapid obsolescence than formerly. In spite of efforts to render mortgage lending safe for the unskillful, alertness and knowledge of economic trends will continue to be essential to investment success. Unfortunately, unsound financing by a few may create an unhealthy situation that is dangerous for all, as events of the recent past have shown.

United States Government Obligations and Instrumentalities

Government Obligations

Sources of government revenue. The Federal Government derives its revenues largely from taxes on the incomes of individuals or corporations; special taxes, such as duties levied on imports; excise taxes on the sale of certain kinds of commodities; fees and fines; occasionally revenues from the operation of government undertakings, such as the post office; and borrowing.

It is true that what is borrowed ultimately must be paid back; at least, that is the original intention, except in the case of permanent loans, such as those represented by English consols and French rentes. Ultimately, therefore, taxes or other sources of revenue must be sufficient to take care of interest payments and the principal of government loans, if insolvency is to be avoided. If borrowing is not a permanent source of revenue, it is logical to raise the question as to why it is used. There are several answers to this question, depending on the condition surrounding the loan. The first borrowing operations to be considered are those conducted during times of great stress, such as a war. Expenditures at such times are abnormally large—far beyond current revenues. It may appear expedient to borrow a part of the necessary funds rather than to impose confiscatory taxes and cause undue financial strain. In this way costs are deferred and are borne by the taxpayers of a future period. Some economists

point out that fundamentally all the goods and services wasted in a war are created in and are a cost to the period in which the war takes place, and, were it not a matter of political expediency, the soundest course would be to pay that cost as it is incurred and so avoid creating claims upon one part of the community in favor of another part through bond issues. Government borrowing may also be directed toward the construction of permanent improvements. It is expected that future generations will receive at least part of the benefit of such improvements and consequently may justly be expected to pay in part for them. Through borrowing operations the cost of these improvements is thus spread over a term of years and is met as the bonds fall due. Furthermore, if such improvements enhance the wealth of the community, as do roads and schools, the additional taxes may constitute no real burden. A third occasion for borrowing may arise when improvements that are expected to be self-supporting, such as the Panama Canal, are built. Finally, borrowing, by means of short-term notes, in anticipation of current taxes is a means of spreading government income equally over the entire year.

History of public borrowing. Public borrowing is by no means confined to the present generation. As far back as the Middle Ages the Italian cities floated public loans, while borrowing by English kings was common before the fourteenth century. Such uncertainty surrounded early government borrowing that loans of this nature were often considered as forced loans. Thus, in England, under Edward IV and the Tudors, the exaction of compulsory loans from wealthy subjects became a frequent and almost regular expedient of the Crown. Under Henry VIII, Parliament was twice called upon, in 1529 and 1544, to convert the public loans outstanding into benevolences by formally releasing the king from the obligation of payment. During Elizabeth's reign, however, the public debts were paid more promptly, and, after the passing of the Tudors, public credit was gradually improved.

Early debt history of United States. The history of our national debt since 1789 has been singular in that this country has never permanently defaulted in the payment of interest or principal of any of its debt. The Treasury Department, created in 1789, faced a national debt of \$52,788,222, to which should be added the debts of the several states, amounting in all to about

\$25,000,000.¹ State debts were assumed in order to induce the states to join the new Union. This total appears small today, but it was a large sum for that generation. In 1803 a subsequent loan of \$11,250,000 was floated to finance the Louisiana Purchase, yet, by 1812, the total national debt had been reduced to approximately \$45,000,000. Despite the fact that the war with Great Britain, which lasted from 1812 to 1814, resulted in an increase in total debt to \$127,000,000, this entire amount was paid off by 1835.² The net indebtedness created by the Mexican War (1846-1848) was \$49,000,000. These loans, bearing 6 per cent interest, were floated at par or higher. On July 1, 1851, the debt stood at \$68,304,796, whereas by 1857 the net debt had been reduced to \$9,998,622. Increased borrowings were occasioned by the panic of 1857, with the result that the debt increased to \$59,964,402, on July 1, 1860.³

Debt history from Civil War to World War I. The extraordinary demand for funds occasioned by the Civil War brought the amount of interest-bearing debt up to \$2,322,116,330 at the end of the fiscal year 1866.⁴ At the end of that war a large part of this debt was in the form of short-term paper which was overdue. In fact, less than one half of the existing debt was actually funded, while such part of it as was funded consisted of a variety of issues, each bearing a different rate of interest and each surrounded by complicated terms and conditions as to duration, option, conversion, extension, and renewal.⁵ Upon assuming the

¹The indebtedness of the United States, on January 1, 1789, including arrearage in interest, was: *

Principal of Foreign Loans.....	\$10,098,706.02
Due France for Military Supplies.....	24,332.86
Arrears of Interest to Jan. 1, 1790.....	1,760,277.08
Debt Due Foreign Officers.....	186,988.78
Arrears of Interest to Jan. 1, 1790.....	11,219.32
Principal of Domestic Debt (est.).....	28,858,180.65
Arrears of Interest to Jan. 1, 1790.....	11,398,621.80
Arrears and Claims (subsequently discharged)...	450,395.52
Total.....	\$52,788,722.03

* Data taken from Raymond, W. L., *American and Foreign Investment Bonds* (Boston: Houghton Mifflin Co., 1916), p. 42.

²Except for a small balance of \$328,582, which remained unpaid because payment had not been demanded.

³*Financial Review*, 1915, p. 90.

⁴*Annual Report of the Secretary of the Treasury for the Fiscal Year Ended June 30, 1867*, p. 514.

⁵Dewey, D. R., *Financial History of the United States* (New York: Longmans, Green & Co., 11th ed., 1931), p. 331 ff

office of Secretary of the Treasury in March, 1869, G. S. Boutwell proceeded with a comprehensive plan of refunding and consolidating the then complicated debt structure of the Government and of reducing interest charges. This undertaking was accomplished under the Refunding Acts of 1870, 1871, 1873, and 1875. Considerable difficulty was experienced in marketing the first issues brought out under these acts, because interest and principal were payable in "coin." In view of the growing movement toward inflation just prior to this time, it was feared that payment might be made in greatly depreciated paper currency. With the passage of the Resumption Act in 1875, and with judicious management of fiscal problems by the Treasury, the national credit greatly improved. The quotations on all national issues advanced rapidly thereafter, thus resulting in a substantial profit to the holders thereof. A large portion of the Civil War debt was reduced in the fifteen years following 1875, and by 1890 the total interest-bearing debt stood at only slightly over \$700,000,000.⁶ The unfortunate experiences which the Treasury met in the matter of gold withdrawals during the 1890's necessitated more borrowing. The Spanish-American War brought a further increase in national debt, with the result that the total interest-bearing debt on June 30, 1899, amounted to \$1,046,-048,750.⁷

The construction of the Panama Canal was financed partly by bond issues. The acts of June 28, 1902, and December 21, 1905, provided for an issue not to exceed \$130,000,000 of 2 per cent bonds to mature in thirty years, but to be callable in ten years. Of this amount \$84,631,980 was actually issued at two different times at prices averaging 103.513 and 102.436. In 1909, 1910, and 1911, acts were passed providing for an issue of \$290,569,000 of 3 per cent bonds, maturing in 1961. Only \$50,000,000 of bonds were issued under these acts at an average price of 102.582.⁸ These 3 per cent bonds, however, were not eligible as security for national bank notes, as were the 2 per cent issues.

Prices of Government bonds. The prices of Government bonds from 1863 to 1913 were influenced by our national banking laws. For many years prior to World War I the securities of our Government sold at prices so high that their yield to the ordi-

⁶ *Annual Report of the Secretary of the Treasury for the Fiscal Year Ended June 30, 1897*, p. 514.

⁷ *Ibid.* See below, p. 613, for prices of Government bonds from 1873 to 1912

⁸ *Ibid.*, p. 505.

nary investor was unsatisfactory. This was not true during the very early period in our national history, when the question of state rights was being settled and when the ultimate fate of our central government was not assured, or during the trying period of the Civil War. Indeed, during the War of 1812, United States bonds were issued on a basis of from 7 to 8½ per cent, whereas during the Civil War they sold on a basis as high as 12 per cent.⁹

The passage of the various acts, during and shortly after the Civil War, designed to create a national currency secured by a pledge of United States bonds (commonly referred to as the National Bank Acts), the successful termination of the struggle for national supremacy, and the passage of the Resumption Act in 1875 had the effect of raising the price of Government bonds and of reducing their yields. Indeed, it is necessary, in order to explain the extremely low yields at which Government bonds have averaged to sell, especially since 1875, to understand in some detail the national banking system in effect prior to the date when the present Federal Reserve System became operative.

The original act, designed to create a national currency secured by the pledge of Government bonds, was approved February 25, 1863. This act, as amended in 1864, provided for the issue by national banks of not over \$300,000,000 of circulating notes (that is, to be used as currency), to be secured by United

⁹The reasons for such high rates of interest on Government bonds during the Civil war lay partly in the uncertainty regarding the outcome of the war and partly in the depreciation that took place in the greenback currency which was issued at that time. All banks, and the Government itself, temporarily suspended specie payments. Large issues of inconvertible paper money caused depreciation in terms of gold. The prices of Government bonds, the purchase of which then involved the chance of ultimate payment in paper currency, likewise declined to low points. The following prices of United States 6 per cent bonds, due in 1881, may be of interest in this connection:

PRICES OF U. S. 6's, 1881*

<i>Year</i>	<i>Low</i>	<i>High</i>
1861 (outbreak of war) ..	84½ (April)	94 (April)
1861.....	83 (June)	95¾ (October)
1862.....	87½ (January)	107¼ (June)
1863.....	91¾ (January)	110¾ (October)
1864... ..	102 (July)	118 (April)
1865.....	103½ (March)	112¾ (January)

* Data from Raymond, W. L., *American and Foreign Investment Bonds* (Boston: Houghton Mifflin Co., 1916), p. 46.

States bonds deposited with the Treasurer of the United States.¹⁰ The act was further amended in 1865 by placing a prohibitive tax on notes issued by state banks, with the result that such notes were driven from circulation.¹¹ The effect of this legislation was to create a demand for United States bonds among national banks, such bonds to be used as the basis for the issuance of bank notes, and to raise the market price of such bonds. Although modifications in these acts were made from time to time, our system of bank note issue prior to 1914 was based on the deposit of Government bonds with the Treasurer of the United States. The prices of Government bonds prior to 1913, therefore, were determined largely by the profits that could be made by banks by putting bank notes into circulation, and not directly by money conditions or by the state of Government credit.¹² With the growing need for bank notes as a circulating medium and with the reduction in the national debt after the Civil War, it is not surprising to find that certain Government issues advanced so rapidly in price that by 1876 they sold on a yield basis of 1.53 per cent.¹³ For many years prior to 1913 Government bonds consistently sold at prices substantially above those of other high-grade securities. Demand by national banks wishing to secure the circulation privilege, and not investment character, determined the abnormally low yield. The following table will in-

¹⁰ See 12 Statutes at Large, 665, and 13 Statutes at Large, 99. An Act to provide a National Currency, secured by a Pledge of United States Bonds and to provide for the Circulation and Redemption thereof. Originally, every National bank was required to purchase certain amounts of United States bonds.

¹¹ See 13 Statutes at Large, 469.

"Section 6. *And be it further enacted*, That every national banking association, State bank, or state banking association, shall pay a tax of ten per centum on the amount of notes of any state bank or state banking association, paid out by them after the first day of July, eighteen hundred and sixty-five."

¹² All issues of United States bonds, except the Panama 3's of 1961, were available as security for note issue under the pre-Federal Reserve System.

¹³ Raymond, W. L., *American and Foreign Government Bonds* (Boston: Houghton Mifflin Co., 1916), p. 77.

PRICES OF GOVERNMENT BONDS: 1873-1912

(Yield Basis)

<i>Security</i>	<i>Period</i>	<i>High</i>	<i>Date</i>	<i>Low</i>	<i>Date</i>
6% 1881....	1873-1882	1.53%	June 16, 1876	4.50%	October 17, 1873
4% 1907.....	1883-1892	2.08	March 29, 1889	2.94	June 23, 1884
4% 1907.....	1893-1902	1.58	March 14, 1902	3.39	August 7, 1896
4% 1925.....	1903-1912	1.93	October 13, 1905	2.80	June 15, 1910

dicate the relative yield of Government securities as compared with the yield of high-grade railroad bonds and commercial paper rates for the period from 1890 to 1909:¹⁴

RATES OF INTEREST ON BONDS AND COMMERCIAL
PAPER IN NEW YORK: 1890-1909

Year	U. S. A's of 1907 and 1925	Average of 10 Railroad Bonds	4 to 6 Months Paper
1890.	2.43	4.72	6.89
1891.	2.65	4.85	6.50
1892.	2.80	4.64	5.38
1893.	3.04	4.75	7.62
1894.	2.79	4.59	5.22
1895.	2.89	4.48	5.73
1896.	3.14	4.54	7.02
1897.	2.73	4.38	4.72
1898.	2.69	4.21	5.31
1899.	2.47	3.96	5.48
1900.	2.18	3.95	5.71
1901.	1.97	3.79	5.41
1902.	1.98	3.77	5.75
1903.	1.99	3.96	6.21
1904.	2.09	3.92	5.13
1905.	2.00	3.82	5.17
1906.	2.04	3.94	6.24
1907.	2.18	4.22	6.55
1908.	2.44	4.16	4.95
1909.	2.52	4.00	4.67

Effect of Federal Reserve System on market for Government bonds. In 1914 the Federal Reserve System was created to take the place of the old National Banking System. Under the present system, Government bonds are no longer required as security for Federal Reserve notes, or Federal Reserve bank notes. The Federal Reserve Act, however, did not at once do away with the old system of note issue, with the result that bonds outstanding prior to 1914, except the Panama 3's of 1961, continued to enjoy a special market until their final retirement in 1935. On the other hand, all Government issues brought out subsequent to 1914 sell on the basis of their merits as high-grade investments and of such tax-exempt features as they enjoy. Their prices are not the result of an artificially created market, save as they have

¹⁴ Mitchell, W. C., "Rates of Interest and the Prices of Investment Securities, 1890-1909," *Journal of Political Economy*, April, 1911, pp. 269-308.

received special support from Treasury or Federal Reserve bank buying in times of market stress.

The Federal Reserve Board has stated that it deems it to be in the public's interest that the banks should "exert their influence toward maintaining orderly conditions in the market for United States Government securities. While the system has neither the obligation nor the power to assure any given level of prices or yields for Government securities, it has been its policy in so far as its powers permit to protect the market for these securities from violent fluctuations of a speculative, or panicky nature."¹⁵ Although the Federal Reserve banks were created as an adjunct to the commercial banking field, an exception was made in favor of United States obligations not only permitting these banks to buy and sell them in the open market but also allowing loans to member banks upon them or on paper secured by them. On September 1, 1939, when World War II caused market declines, it was announced that Federal Reserve banks stood ready to make advances on Government securities to member and non-member banks at par without regard to market value.

Government borrowing during World War I. The prosecution of the first World War necessitated expenditures on a scale of unparalleled magnitude for this country. At the outbreak of the war in 1917 it was generally felt that at least one half the cost of the war should be financed by taxation, and to this end war taxes were put into effect which greatly increased Government revenues from that source. Nevertheless, it was necessary to raise unprecedented amounts by the issue of bonds. The act of April 24, 1917, conferred authority on the Secretary of the Treasury to issue \$5,000,000,000 of long-term, nontaxable bonds at a rate of interest not to exceed $3\frac{1}{2}$ per cent. The total amount of bonds issued under this act was \$1,989,455,550. This issue of bonds, which was dated June 15, 1917, was known as the First Liberty Loan. The act of September 24, 1917, with its numerous amendments, was the authority for all subsequent war borrowing. The long-term bonds issued were the First, Second, Third, and Fourth Liberty Loans, with some of the bonds of the first two issues converted into bonds with a higher coupon rate, as a result of a conversion privilege in those issues. Only the unconverted First Liberty Loan $3\frac{1}{2}$ per cent bonds, however,

¹⁵ *Twenty-sixth Annual Report of the Board of Governors of the Federal Reserve System*, (1939), p. 5.

were wholly exempt from the Federal income tax. The other issues had varying degrees of exemption, which depended upon the amounts held, the manner of purchase, and the year for which income was being taxed.¹⁶

The remaining war borrowing was accomplished by issues of short-term securities, primarily certificates of indebtedness and the Victory Notes.¹⁷ The debt of the United States increased rapidly in both size and complexity as a result of the war. From a total of less than a billion dollars prior to the war, the interest-bearing debt rose to a peak of \$26,349,000,000 on August 31, 1919. The character of this debt may be seen in the following condensed statement:

INTEREST-BEARING DEBT OF THE UNITED STATES
OUTSTANDING: AUGUST 31, 1919*

<i>Title of Loan</i>	<i>Amount</i>
War and Postwar Loans:	
Liberty Loan bond issues (3½'s, 4's, 4¼'s).....	\$16,219,399,300
3¼-4¾'s, Victory Liberty Loan.....	4,113,404,811
4's, War Savings and Thrift Stamps.....	931,332,420
4¼'s, Certificates of Indebtedness.....	3,938,295,000
2's, Certificates of Indebtedness.....	262,914,050
Prewar Issues:	
2's, Consols of 1930.....	599,724,050
4's, Loan of 1925.....	118,489,900
Panama Canal Loans:	
2's of 1916-36.....	48,954,180
2's of 1918-38.....	25,947,400
3's of 1961.....	50,000,000
3's, Conversion Bonds, 1946 and 1947.....	28,894,500
2½'s, Postal Savings Bonds (1st to 16th series).....	11,453,100
Total.....	\$26,348,808,511

* *Commercial and Financial Chronicle*, April 24, 1920, p. 1721.

Postwar financial operations. After August, 1919, the close of each fiscal year showed a reduction in the interest-bearing debt of the United States until on June 30, 1930, the total stood at \$15,922,000,000.¹⁸ The ordinary sinking fund provided by law would have retired about \$3,181,000,000 during this period, but

¹⁶ For detailed descriptions of the various Liberty Loan issues and of the short-term obligations issued during the war, see the annual reports of the Secretary of the Treasury.

¹⁷ Although the Victory Notes were not issued until several months after the signing of the armistice, they are considered as war borrowing, because the proceeds were used for war purposes and because they were issued before the highest peak of war-time indebtedness was reached.

¹⁸ *Annual Report of the Secretary of the Treasury, for the Fiscal Year Ended June 30, 1930*, p. 13.

recurrent Treasury surpluses provided for a much more rapid retirement.¹⁹ From time to time refunding operations by the issuance of Treasury bonds reduced the rate of interest paid during this period. In fiscal years following 1930, the debt increased as a result of the emergency growing out of the depression. The chief emergency expenditures have been unemployment relief in various forms as administered through the Federal Emergency Relief Administration, the Civil Works Administration, the Emergency Conservation Work, and various public works projects; and in the form of financial advances to distressed corporations and individuals through the Federal Farm Mortgage Corporation, the Home Owners' Loan Corporation, and the Reconstruction Finance Corporation.²⁰ The effects of these expenditures are reflected in the growth of debt shown by the statement of interest-bearing debt below. It should be remembered that a portion of this debt is supported by investments that will have value and will aid in debt retirement in the future.

INTEREST-BEARING DEBT OF THE UNITED STATES:
JUNE 30, 1940*

(Millions)	
Treasury Bonds.....	\$26,555
Prewar and Postal Savings Bonds....	196
Treasury Notes.....	6,383
Treasury Certificates.....	None
Treasury Bills.....	1,302
United States Savings Bonds ...	2,905
Adjusted Service Bonds.....	261
Debt Not in Hands of Public†.....	4,775
Total.....	\$42,377

* Daily Statement of U. S. Treasury, June 29, 1940, p. 5

† Old Age retirement fund, unemployment trust fund, etc.

The foregoing condensed statement of interest-bearing debt groups issues on a basis that brings out different investment characteristics.

Investment characteristics of Federal obligations. The various types of Federal obligations will be considered in the paragraphs below.

Treasury bonds. Bonds are the long-term obligations of the Government. Ordinarily they have a maturity of not less than ten years, and they run from that maturity up to perpetual ob-

¹⁹ *Ibid.*, p. 58

²⁰ For a list of the latter agencies for which the Government has guaranteed obligations, see page 624.

ligations. Unlike some foreign governments, the United States has no perpetual maturities, although it formerly had outstanding the Consol 2's of 1930, which were payable at par at the option of the Government any time on or after 1930. The issue was called in 1935. Treasury bonds differ chiefly from the Treasury notes, certificates, and bills in the matter of maturity. Because of long maturity, they fluctuate more in price, which characteristic is a disadvantage to those who might need to realize upon their investment at short notice. Some of the possibilities of Treasury bonds may be judged by reviewing some of the major price swings of the Treasury 4½'s of 1947-1952.

<i>Date</i>	<i>Price*</i>
October, 1922..	Issued at 100
January, 1928.....	Reached a High of 116.3
March, 1929..	Low — 105
June, 1931.	High — 114.8
January, 1932..	Low — 98.30
December, 1936.....	High — 121.28
April, 1937.....	Low — 114
June, 1939.....	High — 122.12
September, 1939.....	Low — 113.18
November, 1940.. . . .	High — 121.16

* Figure after decimal represents 1/32's.

The Treasury bonds consist of a number of issues with a variety of coupon rates and maturities. The coupons range at present from 4½ per cent on the issue just cited to the 2 per cent of the Treasury 2's of 1948-1950. The extreme variety of coupon rates is due to the practice of selecting at the time of issue a coupon rate that permits an offering at the exact price of par.²¹ Most of the issues have an optional maturity date, after which the Government may call the issue if it so chooses. Thus, the Treasury 4½'s mature in 1952, but the Government may call the issue at par at any time on or after the optional maturity in 1947.

Prewar and Postal Savings Bonds. The Panama 3's and Conversion 3's, issued prior to World War I, are relatively small and have inactive markets. The former, with a very long maturity, represents a part of the financing of the Panama Canal, and the latter grew out of the conversion of certain circulation privilege

²¹ The offering of \$100,000,000 of Treasury 3's of 1946-1948 on May 27, 1935, by competitive bids which resulted in a sale at an average price of 103 4/32 to yield 2.67 per cent, represented an experiment which might be adopted to the profit of the Treasury. *Commercial and Financial Chronicle*, June 1, 1935, p. 3650. The last previous bond issue sold in this manner was the Panama 3's of 1961, offered in March, 1911.

bonds in 1916 and 1917 under the terms of the Federal Reserve Act. The issuance of Postal Savings bonds was discontinued in 1935 to be succeeded by United States Savings bonds discussed below.

Treasury notes, certificates, and bills. Treasury notes resemble bonds in most respects except that their maturities run from one to five years. (Differences in tax status are discussed below.) Treasury certificates are also similar for the most part to bonds, but differ in that they have maturities of one year or less. (Certificates have not been offered for public subscription for some years.) Treasury bills have a maturity of one year or less but are issued without coupons, like a non-interest-bearing promissory note. An issue is offered for public subscription and allotted to those who will accept the smallest discount—that is, the lowest yield. The shorter the period an obligation has to run to maturity, the more stable its market price. Consequently notes and bills are particularly sought by investors desiring the maximum of liquidity. They have a stable price and the best of marketability. Called bonds, bonds or notes close to maturity, and bonds or notes which have a nearby optional maturity and a coupon sufficiently high so that call becomes likely will all be treated by the investor as short-term commitments.

As regards yield characteristics, Treasury bonds will follow the general high-grade bond market, which shows less fluctuation in rate of return than the prime commercial paper market. Yields from short-term Government obligations will parallel prime commercial paper rates. In both the long- and short-term money markets, Government obligations show yields substantially lower than those for private obligations. This difference is due partly to tax status and partly to the breadth and firmness of the market for Government bonds, which is invaluable in times of stress to large commercial banks. In an emergency the market for Government obligations can count upon open-market support from the Federal Reserve banks.

Since yields for bonds are more stable than for short-term loans, we find that from 1920 on, coupon rates of Treasury bonds have ranged from $4\frac{1}{4}$ to 2 per cent, while similar rates for certificates have ranged from 6 to .25 per cent.

Savings bonds. The United States Postal Savings deposit accounts have become widely known and used in recent years, as a result of the loss of banking facilities in some communities through bank closings and the desire of many small depositors

to avoid bank service charges. Interest is allowed on these deposits at the rate of 2 per cent per annum, credited annually, except in the state of New Jersey, where the rate is one per cent.²²

After a successful distribution of United States Savings bonds from 1935 to 1941, the Government supplanted them with a very similar offering of Defense Savings bonds. The latter are issued for a period of ten years without coupons on a discount basis. Thus, a \$1,000 par bond would be issued at \$750, at which price the yield to maturity is 2.90 per cent compound interest. The bonds are redeemable at the option of the holder at any time after 60 days at a price that represents a partial sacrifice of the accrued interest. These bonds may be obtained in denominations of \$25, \$50, \$100, \$500, and \$1,000, but not more than \$5,000 of bonds of nominal value may be purchased by one person in any one year, and they are available only to individual buyers.

To absorb the savings of more substantial investors, two other types, Series F Appreciation Plan Savings bonds and Series G Income Plan Savings bonds are offered to an aggregate amount of not more than \$50,000 to any one purchaser in any year. The Series F bonds are much like the Defense Savings bonds in that they are sold at a discount, are non-transferable, and are redeemable with the Government at the holder's option. Their yield is but 2.53 per cent to maturity; they are sold at 74 and mature in 12 years. The Series G bonds pay a cash return of 2½ per cent but if redeemed before their maturity at the end of 12 years they are worth less than the original purchase price of par so that the net yield is less than the nominal rate unless the bond is held for the full term. On the basis of redemption values, Series F and G must be held for 5 years and the Defense Savings bonds for 3½ years before a net yield of 1½ per cent, the average savings bank interest rate, is earned.

Non-interest bearing postal savings stamps, priced from 10 cents to \$5, can be purchased to be exchanged for Defense Savings bonds when an amount equal to the purchase price of the latter has been accumulated.

In addition to the foregoing interest-bearing obligations, the Government has created various other obligations which are held

²² Bonds of the Postal Savings system were obtainable in exchange for deposits on January 1 and July 1 in denominations of \$20 to \$500. Discontinued in 1935 after the advent of United States Savings bonds, those still outstanding are valuable for the privilege of redeemability at par and accrued interest at the option of the holder. They pay 2½ per cent interest and mature twenty years from the date of their issue.

to meet specific future liabilities, as for the retirement of employees in certain divisions such as civil service and foreign service. They represent accruals rather than a present liability, and since they are not held by the public, they have no investment interest. Furthermore, it should be noted that they create no financial problem for the Government until the time comes at which the accumulating liability matures.

Tax status. Until the later part of 1940 all United States obligations except the Treasury and Savings bonds were wholly exempt from taxation.²³ The expression "wholly exempt" does not apply to estate or inheritance taxes, which are levied upon every form of property. Even in the case of Treasury and Savings bonds, interest from bonds with a principal of not more than \$5,000 was wholly exempt. Partial exemption for these bonds in excess of \$5,000 was afforded by their freedom from the Federal normal income tax but not from the graduated surtaxes which are levied upon the incomes of individuals.

With the issuance of Treasury bills dated November 13, 1940 and Treasury notes dated December 18, 1940, a new policy of making Federal Government obligations fully subject to all Federal income taxes was inaugurated. The principle was made mandatory in the Public Debt Act of 1941, Section 4 (a) of which provides: "Interest upon, and gain from the sale or other disposition of, obligations issued on or after the effective date of this Act by the United States or any agency or instrumentality thereof shall not have any exemption under Federal Tax Acts now or hereafter enacted"

A minor exception is provided for obligations of the United States Maritime Commission and the Federal Housing Administration which those agencies may have already contracted to issue at a future date. The change makes all Federal obligations issued on or after March 1, 1941 fully subject to all Federal taxes but they continue to be exempt both as to principal and interest from all taxes by the States and local taxing authorities, save (as formerly) for estate, inheritance, gift or other excise taxes:

Basis of government credit. Government bonds, as distinguished from bonds of private corporations, represent loans that the legally constituted authorities of the government covenant and promise to pay on specified conditions. Contracts of this

²³ The topic of taxation is discussed in Chapter 29.

nature which are entered into between sovereign powers and private individuals differ in fundamental respects from contracts between individuals. In the event of failure on the part of a participant in a private contract to live up to the terms thereof, the remaining parties have the right to apply to the courts for satisfaction. If it appears that the other parties to the contract have been injured by the acts or omissions of the party breaking the contract, the court will afford relief against such a party by giving a judgment against the defendant and in favor of the plaintiff. Thus, when a private individual contracts to pay interest and principal on a loan and fails to do so, the lender may take the action to court and get a judgment against the borrower. This judgment gives the lender the right to attach all the property of the borrower located within the court's jurisdiction. In contracts with a sovereign power, such as the United States, with any of the states of the Union, or with a foreign state, the right of an individual to sue is lacking. In other words, it is beyond the power of any individual to bring ordinary legal compulsion to bear against an unwilling debtor, if the debtor is a sovereign government.

It is also true that, ordinarily, there is no specific security behind government bonds. For the payment of principal and interest of bonds issued by some of the weaker foreign powers, there is sometimes a pledge of certain sources of revenue, such as customs duties, profits, or royalties from domestic monopolies, and the like; but this pledge is entirely different from the pledge of property under a mortgage. After all, if the borrowing power decided subsequently to sequester such sources of revenue by force, it might do so and the creditors would be powerless to object, unless the assets were in the custody of the creditor nation, or unless force was brought to bear by the creditors' government.

In view, therefore, of the very weak legal position of the holder of government bonds, it is customary to attribute a large part of their investment value to the willingness of the sovereign power to pay. Its good faith is, indeed, a factor of the utmost importance. It is not advisable, however, entirely to overlook the ability of the borrowing power to pay, for, after all, the degree of willingness may depend in a large measure on the ease with which payments can be made. A study of defaults in government obligations will almost invariably show that such defaults were really the result of the inability of the government to meet its obligations without the levying of very heavy taxes, with con-

sequent hardship to its citizens. Few politicians and few statesmen have the necessary courage to urge the passage of tax laws that are onerous. The investor, therefore, in considering government bonds, must weigh the reputation that the government has for promptly fulfilling its promises, as well as the relation of the total debt of the issuing power to its revenues, its wealth, and its income.

Position of United States bonds. Bonds of the United States are in no different legal position from bonds of any other sovereign power. Their safety depends on the willingness of the people, as expressed through our Government, to meet their national obligations, and upon the ability of the nation to pay. The record of this country in meeting its obligations has been an excellent and exceptional one.²⁴ Because of the relatively great wealth and prosperity of the United States, an elaborate financial analysis of the general credit would seem unnecessary. While the obligations of the Federal Government will undoubtedly continue to rank as the most highly rated investment, persons with historical perspective have been disturbed by the huge peace time debt expansion of the 1930's, when the national debt rose by a larger amount than during World War I. In that war the interest-bearing debt rose from \$1,000,000,000 to \$26,000,000,000; between 1930 and 1940 the total rose from \$16,000,000,000 to \$42,000,000,000. World War II has set in motion a defense program that makes further debt expansion inevitable. The current burden of this debt has been relatively moderate because of unusually low interest rates, but this situation would change if the cost of money rose because much of the debt is being constantly refunded.

In any event, the cost of borrowed funds promises to be a substantial item in the Federal budget for many years to come. The situation will bear watching even though no immediate threat of default exists. Generally an overexpansion of the Government debt which is held within the country does not lead to default but to inflation and a loss of purchasing power of the

²⁴The refusal of the Federal Government to honor the gold clause in its debt contracts after changing the gold content of the dollar is regarded by many as a default. However, without attempting to determine the reasonableness of this belief, two points should be noted: first, full payments were continued in "lawful money"; and second, prices had so declined at the time of the change in the gold standard that the purchasing power of this lawful money was greater than that of the dollar in use in the period during which most of the debt was created.

standard of payment. This phenomenon is more fully discussed in Chapter 26.

Government Guaranteed Obligations

Rise of emergency agencies. During the difficult 1930's, a number of emergency institutions arose which obtained funds from either the Federal treasury or by the sale of obligations to the investing public. Where the assets and operations of such agencies were not sufficient to support financing, the public credit was added by a guaranty of their issues.

Government guaranteed obligations were outstanding in the following amounts on June 30, 1940: *

Home Owners' Loan Corporation.. . . .	\$2,650,844,923
Federal Farm Mortgage Corporation.....	1,279,850,813
Reconstruction Finance Corporation. . .	1,100,250,767
Commodity Credit Corporation.	407,576,788
United States Housing Authority.	114,806,813
Federal Housing Administration.....	7,608,815
Total... ..	\$5,560,438,414

* Daily Statement of U. S. Treasury, July 31, 1940, p. 6.

These obligations have the general investment and market characteristics of Treasury issues. However, the liability is indirect, they have somewhat less active markets, and they generally show slightly higher yields. Interest from such obligations is exempt from state and Federal income taxes, save surtaxes on individual incomes. A brief description will serve to indicate the general nature of each of these institutions.

HOME OWNERS' LOAN CORPORATION

The Home Owners' Loan Corporation was formed (1933) to aid the small home owner who was in danger of losing his home through foreclosure. About \$3,000,000,000 of loans were made to slightly over 1,000,000 borrowers. The great majority of the bonds issued by this corporation were exchanged directly for first liens on homes where the loan was in default, or to recover homes lost through foreclosure. In order to be eligible for a loan, (1) the home could not be worth over \$20,000; (2) the loan could not exceed 80 per cent of the appraised value; and (3) the loan could be made only to retire an old loan, pay delinquent taxes, or care for approved repairs and remodeling. The loans made were to be repaid by monthly amortization over a fifteen-year period.

Originally, the bonds offered were guaranteed by the Federal Government only as to interest, a fact which resulted in their selling at a discount. To raise the price and lower the coupon required, a full guaranty was given. As a result of refunding, all the issues outstanding are now fully guaranteed. Exemption from taxation is complete except with respect to graduated surtaxes and estate and inheritance taxes, save for any obligations issued on or after March 1, 1941, which will be subject to all Federal income taxes. These HOLC bonds are substantially a government obligation, and will be retired as the assets are liquidated through repayment.

FEDERAL FARM MORTGAGE CORPORATION

Under the Emergency Farm Loan Act of 1933, a special loan fund was created and placed under the control of the Land Bank Commissioner, to give aid to farmers who would otherwise lose their property to creditors. The size of such loans made it necessary to take risks which precluded their acceptance by the Federal land banks. This emergency fund was finally placed under the Federal Farm Mortgage Corporation, created under the act of that title of January 31, 1934. This organization and its predecessor were permitted to lend on the security of either first or second mortgages and on either real or personal property. The amount of such loans, when added to any prior liens, was not to be more than 75 per cent of the appraised normal value of the property mortgaged, and not more than \$7,500 was to be allowed to any one borrower. The bulk—about three fourths—of these loans was used to refinance previously existing mortgage debt. The remainder went to refund short-term debt, pay taxes, buy equipment, repair buildings or make other improvements, and repurchase land lost through foreclosure. In a substantial number of cases, creditors were willing to accept less than the full amount of their claim, in order to enable the farmer to meet the loan requirements and so obtain the means of liquidating the claim of creditors. Generally the farmer received bonds of the Federal Farm Mortgage Corporation with which to pay his creditors, rather than actual cash. Through this plan the farmer was able to secure a loan not otherwise obtainable, on terms of payment which increased the possibility of his meeting his payments; the creditor, on the other hand, was able to convert a frozen loan into a liquid asset.

In view of the risk involved in such loans, direct, unsupported financing, such as that of the Federal land banks, was out of the question. Instead, the Federal Farm Mortgage Corporation issued bonds carrying the guaranty of the United States as to both principal and interest. About a billion dollars of these bonds were created with coupon rates of $3\frac{1}{4}$ and 3 per cent. In addition to the guaranty of the Government, the Federal Farm Mortgage Corporation has a government-subscribed capital stock of \$200,000,000. The tax status of the corporation's bonds is like that of HOLC bonds—that is, complete exemption except from the graduated surtaxes on individuals' incomes, and estate and inheritance taxes.

RECONSTRUCTION FINANCE CORPORATION

The Reconstruction Finance Corporation was created in 1932 as an emergency institution to aid financial and other institutions whose needs could not be met through normal private channels. It made loans, where adequate security appeared present, to banks, railroads, building and loan associations, and other private institutions, and to municipalities. It also allocated funds, usually through the purchase of capital stock, to other government agencies and corporations including the Home Owners' Loan Corporation, the Land Bank Commissioner, Federal Housing Administration, and the Federal National Mortgage Association. Some of these advances, as to the Works Progress Administration, were cared for out of Treasury advances which were subsequently written off; other items, such as loans to railroads and municipalities, were represented by bonds that in some cases were sold later to the public at a profit.

In addition to a capital stock of \$500,000,000 subscribed by the Federal Treasury, the corporation borrowed considerable sums from the same sources. The recent trend has been to repay these latter borrowings and to sell its own notes in the open market. Such notes are fully guaranteed by endorsement as to both principal and interest by the United States Government and have the same tax exemption as the other Government guaranteed obligations previously described.

COMMODITY CREDIT CORPORATION

The Commodity Credit Corporation was created with a Delaware charter in 1933 principally to make loans to producers desirous of carrying agricultural commodities during the market-

ing period. That this agency is designed as much to support farm prices as to finance agriculture is indicated by the fact that borrowing farmers may abandon the collateral to the corporation if its value falls below the amount of the loan without incurring any personal liability for the deficiency. Cotton, corn, tobacco, wheat, butter, and a number of other farm commodities have been financed. The capital of \$100,000,000 was furnished, and must be maintained, by the Federal Treasury. To obtain additional funds the corporation is authorized to sell bonds, notes, or similar obligations up to \$900,000,000. These obligations are fully guaranteed by the United States Government and have the same partial tax exemption as the other guaranteed obligations described here.

UNITED STATES HOUSING AUTHORITY

The United States Housing Authority was set up as a corporation under the United States Housing Act of 1937 to give financial assistance to states and other governmental bodies engaged in slum clearance or low-rent housing projects. A part of such advances may be outright grants or subsidy, and the balance, loans for long periods at low interest rates. As of December 31, 1939, the authority had a capital stock of \$1,000,000 supplied by the Federal Treasury and a paid-in surplus of \$145,908,200. It was authorized to issue notes or other obligations up to \$800,000,000 with maturities up to 60 years. Like the previously described guaranteed obligations, these are fully guaranteed by the Government and are tax exempt save for surtaxes and estate and inheritance taxes.

Government Instrumentalities: Without Guarantee

FEDERAL FARM LOAN BONDS

Agricultural credit need. Prior to 1916 the need for more adequate rural credits was widely felt. Farm mortgage loans bore interest rates that ran to 8 per cent. They were often for short terms so that commissions and bonuses were burdensome and not infrequently brought the effective rate of interest to more than 10 per cent. With the inauguration of the Federal Reserve System in 1914 to improve the commercial banking structure of the country, there was pressure to do something for the farmer.

It is significant that the Federal Reserve Act, as originally passed, made a gesture of assistance by permitting the new Fed-

eral Reserve banks to rediscount for member banks their agricultural paper with a maturity of six months as against a limit of 90 days' maturity for commercial paper rediscounts. Later, the maturity limit on farm paper was increased to 9 months. But the difficulty was more fundamental. Farmers were limited in the commercial banking field to small local unit banks, usually of very limited resources. No branch bank system such as existed in Canada was permitted which could convey funds from the well-provided urban centers to such places as might be most lacking in short-term loans. Even if a local bank was willing to and could borrow from the larger cities, it was limited by its own resources. Since the local bank had to concentrate its risks in a single area, it was obliged to be ultraconservative or to undertake risks that were fatal for a situation lacking diversification. That many pursued the latter course is evidenced by the unusual mortality of rural banks throughout our history, a record that probably can be duplicated in no other country.

In view of these facts, it is not strange that the agricultural interests of the country should urge the passage of legislation to facilitate such financing as they require; and, when one considers the basic role played by our agricultural industry, it is perfectly logical that adequate funds should be provided, under satisfactory banking arrangements, for purposes of legitimate financing. These ends were sought in the passage of the Federal Farm Loan Act in July, 1916.

Types of banks created by Federal Farm Loan Act. Two types of banks were created under this system: first, Federal land banks, and second, joint stock land banks, both of which were designed to provide funds necessary for long-term financing—that is, loans on mortgages. Subsequently, in 1923, by amendment of the original act, Federal intermediate credit banks were established to provide funds for the financing of operations that require, as a maximum, three years for their consummation. In other words, the Federal intermediate credit banks were designed to meet such requirements as were not or could not be met by the commercial banks and which did not necessitate a long-term mortgage.

Establishment and organization of Federal farm land banks. Under the terms of the original act, continental United States was divided into twelve districts to be known as the Federal land bank districts, and in each district a Federal land bank was established. In setting up these districts, consideration was

FARM CREDIT ADMINISTRATION
District Boundaries and Location of District Units

FARM CREDIT ADMINISTRATION WASHINGTON OFFICE
Includes Central Bank for Concomitant
FARM CREDIT ADMINISTRATION DISTRICT UNIT
Federal Land Bank
Federal Land Bank
Federal Credit Corporation

★ **FARM CREDIT ADMINISTRATION - WASHINGTON OFFICE**
Includes Central Bank for Cooperatives

■ **FARM CREDIT ADMINISTRATION DISTRICT UNIT**
Federal Land Bank
Intermediate Credit Bank
Production Credit Corporation
Bank for Cooperatives

LOCATION OF NATIONAL FARM LOAN ASSOCIATIONS AND ASSOCIATION OFFICES

Annual Report of Farm Credit Administration, 1934.

Figure 21—Farm Credit Administration Districts.

given to such factors as total land area, area in farm land, amount of outstanding mortgage indebtedness, the value of farm lands and buildings, population—both rural and urban—and the gross value of farm products. An attempt was made to spread the risk by grouping together states with unlike crops and resources. The ultimate territories set up are shown in Figure 21. These districts have now become the basis for the organization and control of all the various farm credit agencies, as well as of the Federal farm land banks.

Under the present amended law, all of the various Federal agricultural credit agencies are coördinated and governed by the same board of directors that controls the Federal land banks. Each bank has seven directors, three of whom are known as local directors and are chosen in the following way: one is chosen by and is representative of the national farm loan associations, one is chosen by the productive credit associations, and one by the bank for coöperatives. (Such of these organizations as have investment interest are discussed below.) Three more directors, known as district directors, are appointed by the governor of the Farm Credit Administration, two of whom are to represent the public interest and one, who must be a borrower, to represent the national farm loan associations and borrowers through agencies. The seventh director, known as the director-at-large, is to be appointed by the governor of the Farm Credit Administration and is subject to removal by the latter. The governor himself is appointed by the President of the United States.

Capitalization of national farm loan associations. Before starting business, every Federal land bank was required to have a subscribed capital of not less than \$750,000, to be divided into shares with a par value of \$5 each, which might be subscribed to and held by any individual, firm, or corporation, by the government of any state, or by the United States. Stock of the Federal farm land banks owned by the United States Government is not entitled to dividends, although this is not true of all other stock outstanding. The act further provides for the formation of corporations to be known as national farm loan associations, which may subscribe to and hold stock in Federal farm loan banks. The stock that these associations hold cannot be transferred or hypothecated. Voting rights, furthermore, attach only to the stock owned by farm loan associations and the Government. The purpose of forming such associations was to create media through which loans might be made by the Federal land banks.

Each such association is a local corporation and must be made up of ten or more individuals, each of whom are borrowers from the banks. Each borrower is required to subscribe to an amount of stock in the association equal to 5 per cent of his loan. The proceeds of these subscriptions are then invested by the associations in an equal amount of Federal land bank stock, which is held by the issuing bank as additional security for the loan and is eventually retired by its payment.

Functions of farm loan associations. These farm loan associations are required to indorse all loans that are made through them and are also responsible for supervising collection of interest and amortization payments, for reporting delinquencies in the payment of taxes, and for applying the proceeds of all loans. In view of the fact that each farmer borrower has a stock investment that may be used to meet the obligations of his association, there is a mutuality of interest among members to see that all loans taken are good and that proper safeguards are provided for keeping up payments and taxes. The associations' stockholders are also liable for an additional amount equal to the par value of their stock for any indebtedness incurred prior to June 17, 1933. This local responsibility is designed to relieve the bank from much of the details which it would otherwise be required to meet. In those localities that fail to produce their own farm loan associations, as above provided, the farm loan bank may appoint an incorporated bank, a trust company, a mortgage company, or a savings bank to act as agent in negotiating loans. On December 31, 1939, the total number of active loan associations in operation was 3,722.

Over 98 per cent of the original capital of \$750,000 for each bank, or \$9,000,000 for the entire system, was originally subscribed to by the Federal Government. The law provided for the general repayment of this stock, so that it would be replaced by stock held by the local loan associations. In the succeeding years, all but a nominal amount of the Government's stock was retired. In 1932, however, the financial position of the banks was such that the Government deemed it wise to bolster the situation by subscribing for \$125,000,000 of stock. The enabling legislation provided that \$25,000,000 of this capital should be used exclusively for the purpose of supplying the banks with funds to use in their operations in place of any amounts of which they might be "deprived by reason of extensions to borrowers." In effect, it safeguarded the banks against possible losses that

might arise from the extension of the time of payments to borrowers, as provided for in the act.²⁵

Functions of Federal land banks. The principal function of the Federal land banks is to lend money secured by first mortgages on farm property on the following terms: loans may be made only to bona fide farmers engaged, or about to engage, in the cultivation of the farm mortgaged. Each loan must be secured by a duly recorded first mortgage on farm land within the district in which the bank is situated. Such mortgages may not exceed 50 per cent of the appraised value of the land plus 20 per cent of the appraised value of the permanent insured improvements thereon; nor shall any loan be for more than \$50,000. Interest on such loans shall not be over 6 per cent per annum, nor more than one per cent in excess of the coupon rate of the bank's last bond issue, and shall be payable in annual or semiannual installments. At the same time an additional amount is paid that will cancel the entire loan in not less than five, or not more than forty, years. Borrowers, however, are given the privilege of paying off the unpaid balance, or any number of unpaid installments, after five years; and, under certain conditions, they may be allowed to pay the loan off at an earlier date, provided that the bank is compensated for the cost of making the loan.

An application for a loan is investigated first by a loan committee of the local association. This committee investigates the character and the financial responsibility of the applicant and the security offered. A report is then rendered to the land bank, which report must be assented to and signed by all three members, none of whom may have a personal interest in the loan. The report must further state the estimated value of the property, as well as such collateral information as comes to the attention of the board. It is then submitted, with the application attached, to the directors of the bank. If all the requirements are met, the property is then appraised by a Federal appraiser appointed by the Federal farm loan bank, and reviewed by the chief appraiser of the bank, who then submits the application, with his recommendation, to the executive committee of the bank for final action. No mortgage is eligible as security for a bond issue, however, until it is further approved by the Farm Loan Board.

Federal land bank bonds. In order to provide the considerable sums required for lending, these banks are permitted to sell

²⁵ *Commercial and Financial Chronicle*, Jan. 23, 1932, p. 611.

so-called debenture bonds, which are protected by collateral. All bonds are secured by an equal amount of first mortgages on farm property, such as those just described, or by United States Government securities. As mortgage loans are reduced by amortization, additional mortgages or Government securities must be deposited in the amount of such reduction. No bank is permitted to issue or obligate itself for outstanding bonds in excess of twenty times its paid-up capital and surplus, or to receive from any national farm loan association additional mortgages when the principal remaining unpaid upon mortgages already received from such association shall exceed twenty times the amount of of capital stock owned by such association. The bonds now outstanding are all consolidated farm loan bonds, that is, they are the joint and several liability of all the twelve banks.

While the bonds issued by the Federal land banks are considered as "instrumentalities of the government of the United States," and are exempt as to principal and interest from all Federal, state, and local taxation, except estate or inheritance taxes, they are not in any way guaranteed by the Government. Despite this lack of guaranty by the Government, bankers are strongly disposed to feel that in the event of default the Government would give very powerful support. This opinion, however, is merely based on the close relationship which the Government assumed in starting these banks and which it has continued to maintain in the banks' operations.²⁶ Its action in subscribing heavily to new stock in 1932, already referred to (page 631), is significant.²⁷

Statistics of operation. After the sharp reduction in agricultural income during 1920 and 1921, and the settlement of the

²⁶ Hon. Charles E. Hughes, acting as private counsel for a group of bankers at the time they were investigating an early issue of Federal land bank bonds, said in part:

"Taking into consideration the facts which have been stated with respect to the organization and control of the Federal land banks, I am of the opinion that the Farm loan bonds which are about to be issued by the banks under the authority and direction of the Federal Farm Loan Board by virtue of the power conferred by Congress, and which have been expressly declared by Congress to be instrumentalities of the Federal Government, must be regarded as obligations having the support of the good faith and credit of the United States. And while such obligations, because of the nature of sovereignty, confer no right of action against the United States without its consent, being only binding on the 'conscience of the sovereign,' and hence in this aspect invite reliance on the sense of justice of Congress, still the actual relation of the issue of these bonds affords additional grounds for sustaining their validity."

²⁷ Other forms of aid are reported in the *Second Annual Report of the Farm Credit Administration*, 1934.

question of constitutionality of the enabling act, the Federal land banks expanded their operations until in the late 1920's they had one and a quarter billion dollars of outstanding loans. Another accession of business came after the crisis of 1933, so that in 1935 total loans amounted to over two billions. Repayments and liquidation in excess of new loans have caused a declining trend in the total loan figure since that date.

The consolidated balance sheet of the twelve Federal farm land banks on December 31, 1939, as reported by the Farm Credit Administration, follows:

CONDENSED CONSOLIDATED STATEMENT OF CONDITION OF
THE FEDERAL LAND BANKS: DECEMBER 31, 1939*

(Thousands of Dollars)

<i>Assets</i>	
Mortgage Loans	1,896,213
Delinquent Installments.	40,477
Unmatured Extensions.	4,999
Purchase Money Mortgages and Contracts	95,016
Cash.	50,228
Due from U. S. Treasury	8,424
U. S. Government Obligations	88,874
Other Securities.	21
Accrued Interest Receivable (not due).	27,675
Real Estate Owned.	105,207
Sheriff's Certificates, Judgments, etc.	20,687
Loans Called for Foreclosure, etc.	19,760
Banking House and Fixtures (net).	5,887
Miscellaneous Assets.	8,727
Total.	<u>2,372,175</u>
<i>Liabilities</i>	
Farm Loan Bonds Outstanding.	1,742,835
Matured Obligations.	2,940
Notes Payable.	4,558
Accrued Interest Payable (not due).	19,073
Other Liabilities.	14,879
Valuation Reserves.	72,003
Capital Stock.	236,478
Paid-in Surplus.	187,875
Legal Reserve.	56,922
Reserve for Contingencies.	19,994
Earned Surplus.	5,000
Undivided Profits.	9,622
Total.	<u>2,372,175</u>

* *Sixteenth Annual Report of Farm Credit Administration, 1939, p. 26, 156-157.*

The chief asset is the item of net mortgage loans, which consists of only the net balances of unpaid principal not yet matured; this item amounts to 80 per cent of the total assets. The original detailed report (p. 21) shows that 79.5 of these mortgage loans have all their matured installments of principal and interest paid. The "Delinquent Installments" amount to 2.1 per cent of the "Mortgage Loans." The "Purchase Money Mortgages and Contracts," "Real Estate Owned," "Sheriff's Certificates," and "Loans Called for Foreclosure" represent the liquidation of defaulted mortgages. Their total of \$240,670,000 is 10.1 per cent of total assets, or 12.8 per cent of "Mortgage Loans." It will be noted that "Valuation Reserves" amounting to \$72,003,000 have been set up to cover expected losses on these assets.

The liability side of the balance sheet shows bonds outstanding in an amount equal to 7.3 times the capital stock, or considerably better than the permitted ratio of 20 times. Almost all the original \$9,000,000 of stock with which the banks were founded was subscribed by the Federal Government. This stock was gradually repaid as funds came in from the stock taken by the national farm loan associations. The retirement process was completed by March 31, 1934.²⁸ As a result of unusually severe depression conditions, the Emergency Farm Mortgage Act of 1933 was passed, which provided for a new subscription to bolster the credit of the banks and provide coverage for a policy of greater leniency. As a result, \$125,000,000 of additional stock was subscribed for by the Government, to be gradually retired in the future in much the same manner as the original stock. A further provision of this act required the Secretary of the Treasury to subscribe a paid-in surplus in an amount equal to extensions and deferments authorized by this law and made during a five-year period beginning in 1933. This special surplus is shown in the balance sheet. It is apparent that the satisfactory proportions shown in the consolidated balance sheet are largely due to this generous aid from the Federal Government.

Summary. Agriculture is a basic industry. If mortgage loans on farm properties are based on conservative appraisals and suitable repayment terms are made, bonds issued against such mortgages should be considered of investment quality. In view of the political character of the organization, it was at first feared that loans would be made on the basis of overextended ap-

²⁸ *Second Annual Report of the Farm Credit Administration*, 1934, p. 23.

praisals. The banks, however, with the aid of the Government, have weathered a rather prolonged and extended depression in the agricultural industry. Their position appears sound. It seems probable, however, that the period allowed the farmers for the repayment of loans (forty years) is longer than conservative finance would dictate. The loan repayment under even a thirty-year amortization plan gives only a small reduction of principal in the early years. If, in ordinary years, a borrowing farmer cannot pay two times the very low interest rate called for, it is doubtful whether the loan is sound. (The interest rate is less than one half that paid by many farmers before the land bank system was inaugurated.) Too lenient terms may not only weaken the position of the lending institution by leaving little margin with which to meet emergency conditions, but it may also, in more ordinary times, encourage speculation in farm lands and bolster speculative values.

However, the very evident Government support accorded these institutions and the farmer borrowers in 1933 and 1934 have created a decidedly favorable rating for the Federal land bank bonds. Rising prices also increase farm property values. The activities of the Agricultural Adjustment Administration have favorably affected farm income over the short-term, although they have been regarded as an unsettling factor over the long-term because of the tendency of artificially supported prices to destroy foreign markets and stimulate production. Tax exemption and Government support have resolved such doubts as any unfavorable factors might create to give the land bank bonds high standing.

JOINT STOCK LAND BANKS

Organization. In contrast with the Federal land banks, which are essentially mutual corporations the voting stock of which is owned either by the Government or by national associations made up of borrowers, the joint stock banks are essentially private, although regulated, corporations with stock owned by the public. These banks were organized under the Farm Loan Act and operated in the same general manner as the Federal land banks, except that all loans were made directly to the farmer and the banks were not permitted to sell bonds beyond fifteen times their capital stock and surplus. Confined to smaller territories, they lacked the diversification of the Federal system.

Further discussion of the details of their organization and operation is not necessary here because the banks are now in liquidation. During the time they operated, chief investment interest centered in their bonds, which varied in quality with the location of operations and the reputation of the management. After 1929, the increased likelihood of losses from farm-lending operations gave the bonds a somewhat speculative position.²⁹ When the Emergency Farm Mortgage Act of 1933 was passed, it provided for the eventual liquidation of these banks by stipulating that they should issue no more tax-exempt bonds and make no more farm loans except as an incident to the refinancing of their existing loans or the disposal of real estate acquired. In order to make for orderly liquidation, the Reconstruction Finance Corporation was authorized to make them loans, provided that the joint stock banks would agree to certain requirements which would mean more lenient treatment of farmer borrowers.

Financial position. The great change in the position of this group of institutions may be realized by comparing their total assets of \$640,000,000, as of December 31, 1929, with the amount indicated in the combined statement for December 31, 1939, shown here:³⁰

**COMBINED ASSETS AND LIABILITIES OF JOINT STOCK LAND
BANKS: DECEMBER 31, 1939**

(Thousands of Dollars)

<i>Assets</i>		<i>Liabilities</i>	
Mortgage Loans.....	62,878	Bonds.....	96,871
Sales Contracts and Purchase		Notes Payable.....	7,611
Money Mortgages	22,212	Miscellaneous Liabilities. . .	3,850
Cash and Securities.....	25,439	Capital Stock & Paid-in Sur-	
Real Estate, Sheriffs' Certi-		plus	31,233
ficates, etc.....	36,911	Earned Surplus, Reserves, and	
Other Assets.....	2,102	Undivided Profits. . . .	9,977
	<hr/>		<hr/>
	149,542		149,542
	<hr/>		<hr/>

The orderly liquidation of these banks, for the most part without receivership, has been made possible through two chief factors: (1) the ability of borrowers to shift their loans to the Federal land banks and the Federal Farm Mortgage Corporation;

²⁹ Joint stock land bank bonds showed a price movement very similar to the prices of farm products during 1932-1933. Even Federal land bank bonds showed some sympathetic movement, although not to the same extent nor as so depressed a level. Charted in *Moody's Investment Survey* (New York: Moody's Investors Service, Jan. 15, 1934), p. 1486.

³⁰ *Seventh Annual Report of the Farm Credit Administration*, 1939, pp. 228-231.

and (2) the opportunity to purchase their own bonds in the open market at substantial discounts, which provided surplus to meet losses. As a result of these market purchases and the improved outlook, many of the bond issues showed substantial price advances as the liquidation progressed.

INTERMEDIATE CREDIT BANKS

Functions and powers. The Federal intermediate credit banks, created under the authority of the Agricultural Credits Act of 1923, are intended to serve the short-term and intermediate credit needs of the farmer, as the land banks do his long-term credit needs. They are not authorized, however, to make any direct loans to farmers.³¹

There are twelve of these institutions located in the same cities and under the same control as the twelve Federal land banks. Their lending operations consist of:

1. Discounting farmers' and stockmen's promissory notes when indorsed: (a) by private credit agencies, such as national or state banks, agricultural credit corporations, and livestock loan companies; or (b) by coöperative organizations, such as production credit associations, and regional agricultural credit corporations.

2. Lending to coöperative associations of agricultural producers.

3. Accepting drafts, suitably secured by warehouse receipts or other documents, giving title to agricultural staples, when drawn by producers' coöperative associations.

4. Lending to coöperative purchasing associations formed to buy farm supplies for members.

There are various restrictions designed to insure sound loans. Maturities accepted are ordinarily from three months to one year and cannot exceed three years.

Financing through debentures: scope of operations. These banks are authorized to issue debentures up to ten times their paid-in capital and surplus. Such issues cannot have a maturity of more than five years and must be secured by at least an equal face amount of cash, notes, or other obligations discounted.

³¹For further discussion, see Baird, Frieda and Benner, C. L., *Ten Years of Federal Intermediate Credits* (Washington, D. C.: Brookings Institution, 1933).

While these bonds are not a direct obligation of the government, they are regarded as instrumentalities thereof and are exempt from all taxes, except inheritance taxes. All the capital stock of the intermediate credit banks is held by the government. As in the Federal Land Bank System, mutual liability exists on the part of all the banks of the system. The following balance sheet shows the position of these banks:

COMBINED STATEMENTS OF THE TWELVE INTERMEDIATE
CREDIT BANKS: AS OF DECEMBER 31, 1939*

(Thousands of Dollars)

<i>Assets</i>	<i>1939</i>
Loans and Discounts:	
Financing Institutions (net).	180,153
Coöperative Associations.	1,835
Banks for coöperatives.	17,911
Cash on Hand and in Banks.	52,707
United States Government Obligations, Direct and Fully Guaranteed.	74,799
Other Assets	1,358
Total.	328,763
 <i>Liabilities</i>	
Debentures Outstanding (unmatured).	207,200
Other Liabilities.	2,403
Capital Stock Paid In.	70,000
Surplus Paid In.	30,000
Earned Surplus.	16,460
Reserved for Contingencies.	2,700
Total.	328,763

* *Seventh Annual Report of the Farm Credit Administration, 1939,*
p. 55.

The investment standing of the consolidated collateral trust debentures of the intermediate credit banks is very high, but their usually short maturities have made them more attractive to the commercial bank than to the ordinary investor. Their prime quality is explained by: (1) the short maturity of and the character of the security for the loans made by the intermediate credit banks are such as to minimize losses; (2) the net worth, in the form of capital stock and surplus, is substantial in relation to the debenture liability; (3) the stock is owned by the Federal Government; and (4) the banks are jointly and severally liable for all obligations. The debentures also enjoy full tax exemption.

FEDERAL HOME LOAN BANKS

In 1932, twelve Federal Home Loan banks were created to serve home mortgage lending institutions much as the Federal Reserve banks serve commercial banks. They make short- and long-term (amortized over a period of not more than ten years) loans to member institutions, which may be savings and loan associations, savings banks, and life insurance companies. Most of the membership has consisted of the first class of institution. The capital stock of these banks is owned by the Government and the members, the latter subscribing an amount equal to one per cent of their mortgage holdings. When the lending operations of the banks require more funds than are available from the stockholders' investment, Consolidated Debentures are sold. These may be issued up to an amount equal to five times the paid-in capital but not in excess of the secured notes or obligations of member institutions held by the banks. Unlike the bonds of the Federal land banks, the debentures of the Federal Home Loan banks are only partially exempt and are subject to the graduated surtaxes.

FEDERAL NATIONAL MORTGAGE ASSOCIATION

The Federal National Mortgage Association was incorporated in 1938 under the provisions of Title III of the National Housing Act. Capital of \$10,000,000 and paid-in surplus of \$1,000,000 was provided by the Reconstruction Finance Corporation. Its main purpose was to make, purchase, and deal in first mortgages on homes not exceeding \$16,000 insured under the Title II provisions of the same act. It has been chiefly active in buying such mortgages made by local mortgage companies or other institutions as lacked funds of their own to carry them and were unable to find a ready market elsewhere. To finance such holdings as it could not resell, it has issued its own notes. It has the power to issue its own credit obligations up to twenty times its capital and paid-in surplus. Such issues are partially exempt in the same manner as those of the Federal Home Loan banks.

In conclusion, two points should be kept in mind with respect to these "instrumentalities of the Government." In the first place, the obligation of the Government, whether a legal one as a result of a guaranty, or merely a moral one, is not ordinarily expressed as a part of the outstanding Federal debt. However,

one who is analyzing the latter should always keep this "unseen debt" in mind. In the second place, many of these organizations have funds invested in them by the Government, and to the extent that these amounts are repaid in the future, they will permit debt reduction. In this respect assets exist that are sometimes overlooked.

Civil Obligations—State Bonds

State bonds differentiated from municipal bonds. The term "municipal bond," in contrast with "government bond," is sometimes loosely applied to the obligations of states, as well as to counties, municipalities, and other political subdivisions. However, fundamental differences exist among the various types of securities thus classed together. The most important difference is between state bonds and the obligations of political subdivisions of states. Under the Constitution of the United States, each individual state is a sovereign power in itself as to all powers not specifically delegated therein to the Federal Government nor prohibited by the Constitution to the states. Thus, the legal status of state debts is much the same as that of United States debts: such debts rest on the good faith and willingness of the states to pay their obligations when due. Legal compulsion cannot be brought to bear by individuals against a state.¹ It is true that one state may sue another state, but this is of little comfort to an individual who holds the bonds of a defaulting state.²

With a political subdivision of a state, however, the situation is different: if the subdivision fails to pay matured obligations,

¹ There are eleven states, California, Indiana, Ohio, Pennsylvania, Nebraska, Nevada, North Dakota, South Dakota, Washington, Wisconsin, and Wyoming, which do permit their citizens to institute suits against them.

² In certain instances, holders of defaulted state bonds have donated them to other states, which subsequently brought suit against the defaulting state. Thus a holder of North Carolina bonds donated \$10,000 of them to South Dakota, which carried the case to the United States Supreme Court and received \$27,410.

suit may be brought against it. Because of this important difference between the state and its subdivision, the better practice is to classify their obligations separately and confine the term "municipals" to city, county, village, town, and tax district bonds.

It is interesting to recall briefly the history leading up to the present situation in respect to state bonds. At the time the Constitution was under discussion, there was a strong sentiment in favor of state rights. The idea of a strong federal government was not then generally accepted. Accordingly, the individual states insisted on retaining a large measure of autonomy in their fiscal relations. Among the specific restrictions placed upon them were the following: they were not allowed to coin money, to issue bills of credit, or to declare anything but gold and silver legal tender; they were also prohibited from levying import, export, or tonnage duties. Furthermore, no state was permitted to pass laws that impaired obligations or contracts. On the other hand, under the Tenth Amendment to the Constitution, such powers as were not specifically "delegated to the United States by the Constitution, nor prohibited by it to the States," were "reserved to the States respectively, or to the people." The creation of debt is one of the powers neither delegated nor prohibited, and is clearly implied in the Tenth Amendment.

At the time the Constitution was adopted, the right of an individual to sue an individual state apparently was not considered. However, in 1793, a suit was brought against the state of Georgia by a resident of North Carolina. Immediately the question as to whether an individual might sue a state was raised.³ This case was tried before the Supreme Court and decided in the affirmative. The decision was decidedly unpopular, in view of the growing Republican sentiment at this time, and resulted in the adoption, four years later, of the Eleventh Amendment, which read as follows:

The judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by citizens of another state, or by citizens or subjects of any foreign state.

Thus the present situation is explained in so far as it interests the investor. It is true that there was probably no thought of debt repudiation when ratification of the Eleventh Amendment was sought, nor for some years after. Yet, when matters came

³ *Chisholm v. Georgia*, 2 Dall. (U. S.) 419.

to such a pass that some of our states found it expedient to default on their bonds, a convenient refuge from legal action in Federal courts to enforce payment was found in the Eleventh Amendment.

In contrast with the sovereign position which the states occupy, counties, cities, towns, and other incorporated districts, such as drainage, school, and levee districts, are creatures of the state in which they are located. That is to say, they are corporations created by the state and therefore continue their legal existence on the sufferance of the state. In fact, the charters under which municipalities exist may be amended or even repealed by the state. Accordingly, counties, towns, cities, and special districts created within a state occupy a position that is decidedly subordinate to the state from a legal standpoint.

It is the subordinate legal position occupied by municipalities, as we shall designate these divisions, that makes it legally possible for a private individual to bring suit against them without their consent. The legal action customarily brought, in the event of a municipal default, consists of application to the proper court for a writ of mandamus ordering the municipal authorities to levy sufficient taxes to pay the principal and the interest of the bonds in default. In Maine, New Hampshire, Vermont, Massachusetts, and Connecticut, bondholders have the right to seize the property of any or of all the inhabitants in execution of the judgment of a court ordering payment of defaulted bonds.⁴

In other states the general remedy in cases of default consists of mandamus proceedings requiring the proper officers to levy a tax sufficient to pay the judgment, although there are some states in which the *public* property of the defaulting corporation may be seized. In New York State, municipal property not in public use may be so taken. In Indiana any public property of counties may be taken, and probably a similar remedy exists in the case of cities and towns. In Nebraska officers who fail to fulfill their duty of collecting the necessary taxes become personally liable.⁵

It must not be assumed, however, that mandamus proceedings are always effective. In some states there is a definite limit to the amount of taxes that may be levied in any year. Thus, in Alabama, the state constitution of 1901 limits state taxation to

⁴ See Raymond, W. L., *State and Municipal Bonds* (Boston: Financial Publishing Co., 1932), p. 3

⁵ *Ibid.*, p. 5.

.65 of one per cent of assessed valuation, while county taxes are limited to one half of one per cent, provided one quarter of one per cent additional may be levied to pay debts existing December 6, 1875, and provided that one quarter of one per cent additional may be levied to pay debts incurred for the construction or maintenance of necessary public buildings, bridges, or roads.⁶ In November, 1916, an amendment was passed authorizing additional taxes, not exceeding three tenths of one per cent, for school purposes in the several counties, when properly approved by electors. The same rights were accorded special school districts in the state. Cities and towns are authorized to levy taxes up to one half of one per cent, provided one per cent additional may be levied exclusively for paying debts created prior to December 6, 1875. (Certain cities are permitted to levy certain limited additional taxes for special purposes, particularly for schools. These additional taxes range from two tenths of one per cent to one per cent.) By special amendment, certain municipalities are permitted to levy further taxes of one half of one per cent for debt payment and one half of one per cent for any legal purpose, provided the total tax of such municipalities in no year exceeds a total of $1\frac{1}{2}$ per cent.⁷

The effect of this limitation is of special importance to the purchaser of municipal bonds. It means that, in case of default, mandamus proceedings cannot be brought to compel the tax officials to levy taxes in excess of the legal limit. If authorized taxes are insufficient to meet debt service and necessary expenditures of the municipality, then the default is without remedy. In justice to states that have a legal or a constitutional limit on the rate of tax that they or their municipalities may levy, it should be said that strict limits are usually found in respect to the amount of debt they may incur. A limit upon debt rather than upon tax rates is regarded as the more appropriate protection for property owners and bondholders. Many investors avoid any obligations of states or municipalities that limit their tax rate, unless a specific exception is made in favor of that part of the rate which is used to care for the debt service.

State credit in the United States. At the present time, it is customary to regard state and municipal bonds as second only to Federal obligations in the matter of safety. Yet, during our rel-

⁶ State Constitution, 1901, Sections 214, 215.

⁷ State Constitution, 1901, Section 216, and amendments. In about one half of the states, taxes are now limited in one way or another.

atively short national history, there have been flagrant examples of default and repudiation in respect to state debts, as well as some municipal defaults. No study of state bonds would be complete without at least passing consideration to these defaults, as well as to the underlying causes from which they resulted. A study of the causes is just as important as a study of the facts, for it is only by eliminating the causes that we may hope to prevent history from repeating itself in these matters.

Period from 1789 to 1830. At the time the Constitution was adopted, most state debts had been assumed by the United States. For the first forty-five years of our national existence, a conservative financial policy was pursued not only by our Federal Government, but by state governments as well. The early Federal debt had been entirely paid off in 1835. In 1825 the aggregate debt of the states was but \$13,000,000, or \$5,000,000 below the amount of state debt at the time of national assumption in 1790. By 1830, however, the total state debt had been increased to \$26,000,000, and in 1835 to \$46,000,000.

Period from 1830 to 1840: defaults following panic of 1837. During the very period in which our Federal Government was reducing its debt, state governments were pursuing the opposite course. The first part of the decade from 1830 to 1840 was marked by rapid expansion in all branches of economic activity, and the various states, in an effort to attract trade and industry, vied with one another in the development of roads, canals, railroads, and other public improvements. At a time when antagonism toward further extension of Federal undertakings within states was evident, there was a strong popular sentiment favoring state aid in the completion of public improvements within state borders. A period of feverish building and borrowing was the result. The aggregate state debt, which, in 1835, was but \$46,000,000, reached the then enormous total of \$175,000,000 during the next three years. The panic of 1837 and the ensuing depression, which lasted well into the next decade, were accompanied by widespread default and repudiation in state debts. While it is true that the West and the South were the worst offenders, it is by no means true that defaults were confined to those sections.

The New England States had an exceptionally splendid record. Maine, Vermont, New Hampshire, Connecticut, and Rhode Island did not follow the trend of the times but kept themselves comparatively free from debt. Massachusetts was never in serious financial straits after the adoption of the Constitution, even

though its debt grew much more rapidly than did that of neighboring states. New York, Pennsylvania, and Maryland, on the other hand, incurred very heavy debts during this period. New York, in its effort to finance the Erie Canal and other lateral canals, piled up a total debt aggregating \$18,262,406 and, by 1842, was on the verge of bankruptcy.⁸ It must be said to its credit, however, that at no time did it default, in payment either of principal or of interest. Pennsylvania and Maryland, in contrast, had less fortunate experiences. The total debt of Pennsylvania reached \$37,319,395 in 1842, a large part of which had been incurred in aiding railroad and canal companies. When these undertakings proved unprofitable during and after the panic of 1837, the state was temporarily unable to pay its interest in cash. Nevertheless, cash payments were resumed in 1845, and the "relief notes" used to meet interest payments during the crisis were eventually redeemed. Since that time there has been no further difficulty in payment either of principal or of interest by this state. The situation in Maryland was similar to that in Pennsylvania. During the early 30's, Maryland subscribed to the stocks of various railroads, including the Baltimore & Ohio, and lent money to and purchased stock of the Chesapeake & Ohio Canal. At the time extensive borrowing was undertaken to support such public improvements there was no system of taxation. The inevitable result, at the time of the 1837 panic, was inability to meet interest payments. The state took active measures to correct this situation, however, and, on January 1, 1848, it was able to resume interest payments in full.⁹

Other states became involved in the wave of speculative enthusiasm that characterized this period, and suffered similar consequences. In 1840 Indiana suspended interest payments, but in 1847 settled all arrearages. Illinois, in 1841, experienced similar troubles, but eventually cleared its record. Michigan became involved in an overoptimistic program of state aid, and defaulted in 1841. Settlement with creditors was less generous here than in the other states so far mentioned, in that Michigan agreed to acknowledge only that portion of its debt for which it

⁸ *Tenth Census*, Vol. VII, pp. 526, 537.

⁹ Raymond, W. L., *State and Municipal Bonds* (Boston: Financial Publishing Co., 1932), pp. 122-123. Moreover, "when the state found itself unable to pay interest, it received coupons in payment of taxes. From 1844, it made partial payments on interest current and accrued. Later it funded arrears of interest with 6 per cent bonds."

had received full payment.¹⁰ Bonds that had been only partially paid for had worked their way into the hands of innocent purchasers who paid in full, yet these purchasers failed to receive the entire face value of their bonds. The record of Michigan, accordingly, is one of reasonably good faith in difficulties, but is not so commendable as that of the other defaulting states, which eventually made payment in full. The record of Florida and Mississippi during this period was far less satisfactory than that of other defaulting states, in that both deliberately repudiated their entire debts. The territory of Florida, in 1840, refused to pay interest on an issue of bonds of the Bank of Pensacola that had been indorsed by the territory. Other bonds had been issued to supply the capital of the Union Bank of Florida, as well as of the Southern Life Insurance & Trust Company. These bonds were all repudiated by the territory, and, when the constitution of the state was adopted, prior to the admission of Florida to the Union, the legislature was denied the power of imposing any tax for the purpose of paying the bonds issued by the territory.¹¹ Arkansas was in default in 1841, and, since no definite attempt was made to clear up the record, it remains in default on some of its bonds to this day.

The alternate waves of enthusiasm and depression that swept the country during the decade from 1830 to 1840 were thus responsible for the first era of default in state debts. The underlying causes for this unfortunate situation may be summarized under two headings: overabundant optimism and too liberal state aid in private undertakings. Of course, there were auxiliary causes, such as the political roguery of the times, lack of financial acumen, poorly organized systems of taxation, and the like, but these were secondary. The lesson was partially taught at this time that state legislatures should restrict their activities of governmental functions and should not embark on commercial ventures either independently or as partners. We say "partially taught" because, while the dangers inherent in state ownership of commercial enterprises were made clear, it remained for subsequent defaults to drive the lesson home.

Second era of default, from 1848 to 1860. The second period of defaults covered the years from 1848 to 1860. During these

¹⁰ *Ibid.*, p. 129.

¹¹ Constitution. *State of Florida*, effective March 3, 1845, Article VIII, Section 2.

years there were some difficulties of a less serious nature than those that occurred during the previous period. The most serious case of repudiation at this time occurred in Minnesota and resulted largely from the same circumstances that caused the widespread defaults of the 30's—state aid granted to railroads in the form of bond issues sold by the state. In 1860 an amendment to the state constitution provided that no law which called for payment of the principal or the interest of \$2,275,000 of state bonds so issued should take effect until such law was ratified by popular vote. There developed at this time a strong sentiment in favor of repudiation, and it was not until the supreme court of the state held the amendment unconstitutional that this debt was compromised. Shortly thereafter an act was passed that provided for settlement of the old debt on the basis of fifty cents on the dollar in cash or 5 per cent bonds for old 7 per cent bonds and interest. Substantially all the old bonds were retired in this way.

Texas defaulted on its bonds prior to its admission as a state. The entire debt at that time was estimated at \$9,647,253, to which a value of \$4,807,764 was assigned. The United States agreed to pay Texas \$10,000,000 in 5 per cent bonds for certain territory ceded to Mexico, although only \$5,000,000 was to be released until creditors of Texas had released the United States from all claims on account of customs. The second \$5,000,000 was never issued, and subsequently, the United States appropriated \$7,750,000 in cash to satisfy creditors of Texas. In 1856 the state was declared to be out of debt.¹²

California was the third state to default during this period, the default occurring in the year 1854. Subsequently, the supreme court of the state declared void all debt in excess of the \$300,000 limit. In 1857, however, the illegal issues were called in, and adjustment bonds were issued in payment therefor.

This second period of default was not especially important. During this time there was no case of out-and-out repudiation, and, in two of the three cases cited, the causes for default antedate entrance of the defaulting states to the Union. By far the most important era in state repudiation was the period from 1870 to 1884. In our discussion of debt repudiation we may neglect the fact that all obligations incurred by the seceding

¹² Raymond, W. L., *State and Municipal Bonds* (Boston: Financial Publishing Co., 1932), p. 178.

states in prosecution of the Civil War were never paid, for all such debts were declared illegal and void.¹³

Third era of default, from 1870 to 1884. From our standpoint, the most significant event of the period 1870 to 1884 was the actual repudiation of debt by Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Louisiana, Arkansas, and Tennessee. It is unnecessary to go into an exhaustive account of each specific case, for such a detailed discussion would serve no useful purpose here. Defaults were frequent throughout this entire period, and, while a small portion of the debts created by these states was subsequently compromised, by far the greater part was repudiated under the convenient refuge of illegality or invalidity. For a majority of these states, the aggregate amount of debt with accumulated interest to 1920 was estimated by the Council of the Corporation of Foreign Bondholders (London) as follows:¹⁴

<i>State and Purpose</i>	<i>Approximate Principal Outstanding</i>	<i>Interest</i>
Alabama (guaranties to railways).....	Unknown	Interest in arrears from about 40 years to about 70 years. Estimated arrears of interest figured at an average of 6 per cent for 50 years.
Arkansas (principally railway guaranties)....	\$ 8,700,000	
Florida (banks and railways).....	7,000,000	
Georgia (principally railway guaranties)....	12,700,000	
Louisiana (railway guaranties, etc.).....	6,000,000	
Mississippi (banks).....	7,000,000	
North Carolina (railways).....	12,800,000	
South Carolina.....	6,000,000	
Total.....	\$ 60,000,000	
Estimated Arrears of Interest.....	180,000,000	
Grand Total...	\$240,000,000	

The essential causes leading to the unfortunate period of debt repudiation following the Civil War are not difficult to find. In the first place there had been a substantial loss in wealth in the Southern States as a result of the war itself. In 1860, for instance, the total assessed valuation of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisi-

¹³ The Fourteenth Amendment, Section 14 of the Constitution of the United States, reads: "But neither the United States, nor any state shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave; but all such debts, obligations, and claims shall be held illegal and void."

¹⁴ 48th Annual Report, Council of the Corporation of Foreign Bondholders, 1921.

ana, Arkansas, Tennessee, and Missouri was \$4,332,901,458, while in 1880 the assessed valuation of these same states, including West Virginia, was \$2,232,790,584.¹² This reduction may be partly accounted for by the emancipation of slaves, but there was a further real loss in values upon which taxes could be levied. Another and perhaps more important cause for repudiation is found in the character of the governments in these states during the reconstruction period following the war. These states were overrun by cheap and dishonest politicians who descended from the North and who, by means of the newly enfranchised Negro voters whom they controlled, had themselves elected to important state offices. With a ruthlessness that outclasses any political scandal of the present century, these "carpet-baggers" engaged in all kinds of speculation and dishonesty. In many cases a large part of the debts incurred in the name of the Southern States during this period was created by dishonest politicians who carried away the proceeds. It is little wonder that the native population, outraged in other ways during this period, felt under no moral obligations to meet these debts after the carpet-bagger was finally driven out. Although the South may be absolved in part from the censure that it has received on account of the wholesale debt repudiation of this period, it is nevertheless true that some of the funds represented by the bonds disposed of were received by states and were used in their interests. It is also true that during this period frequent borrowings were undertaken for state aid of private undertakings. Again, the same difficulties arose that caused the first period of defaults: the optimistic predictions regarding the earning power of the sponsored projects failed to materialize, thus leaving the state saddled with a heavy debt to be met by taxation.

Virginia-West Virginia controversy. We shall not consider the history of the debt experiences of each state, but the West Virginia controversy is of sufficient interest to warrant some attention. When the constitution of West Virginia was adopted in 1863, the state agreed to assume an equitable portion of the public debt of Virginia as of January 1, 1861. A long dispute arose as to what West Virginia's share actually was, the state of Virginia claiming that, since West Virginia acquired one third of the territory of the old state, it ought to assume one third of the debt, or \$15,239,371. West Virginia, however, claimed that her share did not exceed \$953,360. In 1911 the United States

¹² *Tenth Census*, Vol. VII, pp. 4, 16.

Supreme Court held West Virginia liable for a principal sum of \$7,182,507, leaving the matter of interest to be adjusted. After further controversy the Supreme Court appointed a special master to take additional testimony, and in 1915 the findings of the master were sustained to the effect that the state of West Virginia was liable for the sum of \$12,393,929.50, with costs divided between the two states. "Subsequently, Virginia found it necessary to petition for execution of judgment against West Virginia, and after some delay the legislature of the latter state adopted resolutions providing for a settlement of this debt. Not until 1919, however, did West Virginia bring the controversy to a close by delivering to the Chairman of the Debt Commission the sum of \$12,366,500, the amount then due in settlement."¹⁸

This brief survey of state debts leads to the inevitable conclusion that, when a state becomes indebted for an amount that is excessive in relation to property values, the situation is dangerous. The pinch of heavy taxation is too easily relieved by resort to technicalities in an effort to prove a burdensome debt illegal and void. Nor is there any adequate remedy open to the unfortunate bondholder in such cases. The best protection, therefore, is the development of a code of honor and ethics that will make such a situation as existed fifty years ago impossible, and also the restriction of debts to moderate sums in relation to wealth and income.

Customary restrictions regarding state debts. The early experiences of our states in debt matters has at least taught the desirability of rigid constitutional restrictions on the amount of debt that may be created and the purposes for which borrowing may be undertaken. Practically every state today has constitutional provisions regarding borrowing. The more important restrictions customarily found may be summarized as follows:

1. Permission is generally given to borrow without limit for purposes of repelling invasion, suppressing insurrection, or defending the state in time of war.
2. Permission is given to borrow up to a limited amount in anticipation of revenues in order to meet casual deficiencies in revenues.
3. Permission is given to issue bonds or notes for the purpose of refunding existing debt.

¹⁸For a complete account, see Raymond, W. L., *State and Municipal Bonds* (Boston: Financial Publishing Co., 1932), p. 188 ff.

4. Borrowing is frequently allowed for certain special purposes definitely stated in the acts authorizing the loan, provided that arrangements are made at the same time for paying the interest and principal of the bonds. Frequently authorization of the loan is required to be ratified by popular vote.

5. On the other hand, lending state credit to private enterprises, or lending state credit to political subdivisions, is prohibited.¹⁷

Present status of state borrowing. An era of conservatism in state financing followed the third period of default and repudiation, which may be said to have culminated by 1880. At the same time that our Federal Government was reducing its debt, state debts were gradually decreasing, the total net debt standing at only \$211,210,000 in 1890.¹⁸ From that time until the World War I there was a moderate increase in state borrowings, but in no case was the amount of debt incurred alarming. Since World War I, however, there has been a decided increase in state borrowing, as can be seen from the table below. Even with the figures reduced to a per capita basis in order to allow for population growth, the increase is huge.

STATE INDEBTEDNESS FOR SELECTED YEARS*

	<i>Gross Debt</i> (Millions of Dollars)	<i>PER CAPITA DEBT</i>	
		<i>Gross</i>	<i>Net</i>
1938	3,301	\$25.64	\$19.49
1937.....	3,275	25.33	18.90
1931.....	2,666	21.64	16.04
1930	2,444	20.03	15.03
1928.....	2,144	18.07	13.35
1926	1,858	16.04	11.46
1924.....	1,593	14.32	10.16
1922.....	1,163	10.74	7.70
1919.....	694	6.60	4.44
1915....	533	5.41	3.75

* *Financial Statistics of States*, 1931, pp. 29, 31; 1937, p. 127; 1938, Summary Bulletin, p. 14.

The total, or gross, debt includes not only the funded debt but also floating, current, and special assessment debt, and liability to trust funds. The net debt figure includes fixed plus floating debt minus sinking fund assets. In 1937, fixed and floating debt amounted to \$3,023,000,000, and sinking funds, \$598,000,000.

¹⁷ The four states, New Hampshire, Vermont, Massachusetts, and Connecticut, have no constitutional restrictions in regard to the creation of debt.

¹⁸ *Statistical Abstract of the United States*, 1926, p. 215.

The same expansion in the activities of the states is reflected in the following table of operating costs on a per capita basis. The table does not include figures for interest on debt and its amortization.

PER CAPITA COSTS OF OPERATING VARIOUS STATE ACTIVITIES*

	1937	1932	1922	1919	1915
Total.....	\$20.28	\$12.52	\$8.48	\$5.16	\$3.85
General Government.....	1.18	.98	.66	.50	.45
Protection to Person and Property..	.83	.70	.49	.33	.27
Health and Sanitation.....	.29	.21	.20	.14	.10
Development and Conservation of Natural Resources.....	.61	.58	.39	.23	.17
Highways.....	3.40	2.46	.98	.59	.23
Charities, Hospitals, and Corrections	6.71	2.65	1.50	1.28	.91
Education.....	6.43	4.78	3.07	1.75	1.49
Miscellaneous.....	.80	.09	1.20	.36	.23

* *Financial Statistics of States, 1937, and earlier issues.*

COMPARISON OF STATE DEBTS: 1937 AND 1932*

State	TOTAL NET DEBT (Thousands of Dollars)		NET DEBT PER CAPITA	
	1937	1932	1937	1932
Alabama.....	72,591	82,342	\$25.14	\$39.90
Arizona.....	1,598	3,676	3.91	8.34
Arkansas.....	163,859	164,423	80.44	88.16
California.....	106,332	145,723	17.40	24.67
Colorado.....	30,056	6,747	28.12	6.45
Connecticut.....	↑	108	↑	.07
Delaware.....	3,118	2,072	11.99	8.63
Florida.....	...	391	...	.26
Georgia.....	23,492	12,488	7.61	4.29
Idaho.....	2,204	6,961	4.49	15.61
Illinois.....	200,539	221,404	25.50	28.58
Indiana.....	4,458	4,730	1.29	1.45
Iowa.....	6,458	16,495	2.53	6.66
Kansas.....	20,467	21,810	11.46	11.53
Kentucky.....	14,929	16,224	5.14	6.16
Louisiana.....	126,325	83,743	59.25	39.41
Maine.....	29,969	27,219	35.05	34.02
Maryland.....	50,787	31,198	30.27	18.99
Massachusetts.....	22,772	62,856	5.15	14.69
Michigan.....	34,123	60,582	7.10	12.21
Minnesota.....	62,559	40,155	23.66	15.55
Mississippi.....	51,460	36,320	25.53	17.94
Missouri.....	119,215	103,303	29.89	28.33
Montana.....	9,850	9,316	18.41	17.33
Nebraska.....	531	929	.39	.67
Nevada.....	662	1,370	6.56	14.89
New Hampshire.....	13,901	6,505	27.31	13.96
New Jersey.....	86,905	62,198	20.04	15.05
New Mexico.....	15,243	11,407	36.12	26.53
New York.....	525,900	463,068	40.62	36.14

COMPARISON OF STATE DEBTS: 1937 AND 1932* (Cont.)

State	TOTAL NET DEBT (Thousands of Dollars)		NET DEBT PER CAPITA	
	1937	1932	1937	1932
North Carolina.....	136,420	164,534	39.25	50.91
North Dakota.	†	5,005	†	7.32
Ohio.....	10,427	7,696	1.55	1.15
Oklahoma.	11,936	21,438	4.70	4.74
Oregon.	26,389	33,388	25.82	34.60
Pennsylvania.	121,670	75,858	11.98	7.81
Rhode Island.	26,969	16,807	39.60	24.15
South Carolina.....	40,771	77,984	21.83	41.74
South Dakota.	2,511	15,510	3.63	22.19
Tennessee.....	91,007	94,032	31.60	35.55
Texas.....	26,649	10,317	4.33	1.75
Utah.	3,901	5,694	7.53	11.08
Vermont.....	7,843	9,545	20.53	26.51
Virginia.	23,892	25,983	8.88	10.68
Washington.	12,547	8,257	7.62	5.22
West Virginia.	76,019	86,394	41.11	49.20
Wisconsin.	1,184	1,184	.41	.40
Wyoming.....	3,215	5,568	13.68	24.42
	2,424,648	2,360,958	\$18.90	\$19.07

* *Financial Statistics of States*, Summary Bulletin, 1937, p. 15; *Financial Statistics of States and Local Governments*, Bureau of Census, 1932, pp. 50-56.

† Sinking fund assets in excess of funded or fixed debt.

Causes for recent increase in state debts. The rapid increase in state debts since the World War I is due to a variety of causes. Possibly the enormous growth in Federal borrowing, made necessary by the war, had its effect in stimulating similar operations on the part of states hitherto reluctant to add to their obligations. Today we are accustomed to speak in terms of billions where a decade or two ago millions seemed large. A more direct result of the war is found in borrowing for the payment of soldiers' bonuses. Many states in the years immediately following the war put out large bond issues for this purpose.¹⁰ Little criticism can be made on purely financial grounds against this action, where the amount involved was moderate and proper means were adopted at the time for repayment of the debt.

By far the most important reason for the more recent increases in state borrowing is found in the extraordinary development of the automobile and the motor truck industry with the accompanying demand for more and better roads. The leading importance of highway building as a debt factor is seen in the following

¹⁰ Among the states that put out large issues for soldiers' relief may be enumerated New York, New Jersey, Ohio, Illinois, Michigan, Minnesota, Iowa, Missouri, Kansas, Washington, and Oregon.

table, which also shows the other kinds of durable improvements financed by bonds:

FUNDED OR FIXED AND CONTINGENT DEBT: 1937*

Highways.....	\$1,667,426,051
Charities, Hospitals and Corrections.....	628,607,844
Agriculture.....	135,243,910
Schools.....	79,705,048
General Administrative, Legislative and Judicial..	35,136,982
Parks and Reservations.....	28,912,377
War loans.....	5,962,200
Armories.....	4,984,071
Miscellaneous.....	138,958,518
Combined or Unreported.....	412,439,403
Funding and Refunding.....	313,351,181
Total.....	\$3,450,677,585

* *Financial Statistics of States, 1937, pp. 132-135.*

That this considerable expansion of state debt left credit strained in some cases is admitted. In Arkansas expansion of debt led to defaults in 1932 upon certain of the road district bonds. Defaults were finally mended through a debt readjustment put into effect in 1934.²⁰

State financing for business ventures. The unfortunate experiences of the states in their early history with business ventures such as railroads, canals, and banks have resulted in many constitutional prohibitions. However, some states, chiefly the agricultural ones, have been active in this field in recent years. South Dakota has used her credit extensively within recent years for the purpose of extending rural credits. Under the Rural Credits Amendment to the Constitution in 1916 and 1918 and under subsequent acts, the state was authorized to borrow sums not to exceed \$50,000,000 for the purpose of making loans on farm mortgages. A law passed in 1927 repealed some of the provisions of former laws and reduced to \$47,000,000 the amount of bonds that might be issued. On June 30, 1934, the rural credit bonded debt amounted to \$44,469,000. North Dakota, under the auspices of the Nonpartisan League, a socialistic farmers' party, sold, in 1919, some \$2,000,000 of bonds in order to provide

²⁰ For a statement of the plan consummated by the Refunding Act of 1934, see *Moody's Manual of Investments: Government Securities* (New York: Moody's Investors Service, 1935), pp. 126-130. For a general account that indicates some of the means by which pressure can be exerted upon even a sovereign state, see Broderick, John P., "Arkansas Restores Credit Standing," *Barron's*, June 4, 1934, p. 15.

capital for the Bank of North Dakota. At this time \$5,000,000 of bonds of the mill and elevator series and \$10,000,000 of real estate bonds were also authorized. In 1922, and again in 1923, the amounts of authorized real estate bonds were increased, and at the close of 1934 there were outstanding \$37,411,700 of these bonds, supposedly self-supporting from the income of the mortgages acquired. At the same time there were outstanding \$3,500,000 of bonds that had been issued to furnish the necessary funds for the erection and operation of state-owned mills and grain elevators and \$1,000,000 of the bank series.²¹ Minnesota also issued rural credit bonds to make loans to farmers. The plan, intended to become self-supporting, was unsuccessful, and, on July 1, 1933, the Rural Credit Bureau ceased operations as a lending agency and went into the hands of a conservator.²²

Massachusetts offers another example of the extension of state credit to aid private enterprise. Under the provisions of the Public Control Act of 1918, any deficiency in the revenues of the Boston Elevated Railway Company below the cost of service is met by the commonwealth, which then assesses the cities and towns served by the company. In 1923 legislation was passed requiring either the state or the Boston Metropolitan District to purchase \$5,000,000 of maturing bonds of the company.²³

It was this type of financing that led to the widespread defaults and repudiation that characterized the 1830's and the 1870's. The functions of the state center around the exercise of those sovereign powers ordinarily performed by governments and not delegated to our national Government: legislative and administrative control of local problems, building and maintenance of good roads, policing, supervision of local governments, maintenance of state educational institutions, and so forth. An active participation in private enterprises through the use of state credit has almost invariably led, sooner or later, to gross mismanagement and financial loss.

Financial tests of state credit. Important as the matter of good faith becomes in purchasing state bonds, the financial aspects of the state should nevertheless not be disregarded. After all, one of the most impelling forces that determine whether a state shall meet its obligations is the relative hardship caused

²¹ For a classification of North Dakota's debt, and validating acts, see *State and Municipal Compendium*

²² *State and Municipal Compendium*, December, 1934, p. 16.

²³ *State and Municipal Compendium*, June, 1935, pp. 38-39.

by the levying of the necessary taxes. Where obligations are small in relation to property values and population, there is no reason for raising questions of validity or regularity in respect to the state's obligations, nor is there danger that revenues will prove insufficient to meet necessary expenses and debt service. On the other hand, where obligations are heavy, correspondingly high taxes become necessary to meet expenses and interest and principal. Such a situation is undesirable, particularly if the borrowing fever of the population is allowed to continue unabated. We shall therefore consider some of the customary tests that are applied in analyzing the financial status of state bonds.

Ratio of debt to assessed values. The first test to be considered is the relation of net indebtedness to the aggregate assessed value of property within the state. Most states raise the bulk of their income through taxes based on property, real and personal. Where a property tax is levied, it is customary to assess it at the same time that the local county and municipal tax is assessed, the state tax in reality being assessed by the city or the town and remitted to the state on the basis of the proportion of the total taxable property of the state located within the municipality. The state's rate, therefore, is constant for each town. For this reason it is often advantageous for the city to undervalue property within its limits but to raise its tax rate. In this way the same amount is collected by the city for city purposes, but its contribution to the state is reduced. Where this practice is general, the figure representing the assessed value of property within a state is below actual values. This fact is generally noted in connection with debt statements, and, where it exists, an adjustment is required in order to obtain the true value of the property within the state. Thus, in 1933 the state of Alabama showed an assessed valuation for all property of \$966,755,471, the basis of assessment being 60 per cent. In ascertaining the relation of debt to assessed value for comparative purposes, therefore, one would be justified in raising this amount to 100 per cent by dividing by 60 per cent.

Some states distinguish between real and personal property and assess a tax on personal property lower than that on real estate. The object of this practice is to elicit a declaration of personal or intangible property, which otherwise would escape taxation. It is impossible, of course, for the owner of real estate to escape a property tax, for such assets cannot be concealed from

the assessor. The owner of stocks or bonds, however, can often conceal such property, and, when making a return, can neglect to enter it. Such concealment is not without good reason, for, where there is no distinction between real and personal property, the general tax rate, if applied to intangibles, is generally excessive. If \$25 per thousand is the current rate, applicable to tangibles and intangibles, it will be noted that this amount is equivalent to $2\frac{1}{2}$ per cent of the value of the property. Thus one half of the income of a 5 per cent bond would be collected in the form of a tax. Where a special personal property tax is employed, it is much lower than the rate on tangible property. In Pennsylvania, the rate is four mills (that is, \$4 per \$1,000 market value); in Maryland, $4\frac{1}{2}$ mills; and in Rhode Island, 4 mills.

In addition to property taxes, other state revenues are made available through income taxes, inheritance taxes, gasoline taxes, and license fees for registering and operating motor vehicles.²⁴ Where the state relies on a property tax for the bulk of its revenue, a significant test of the extent to which borrowing has been extended lies in the ratio of debt to the real value of assessable property. Where this ratio does not exceed 3 per cent of the true value of assessable property, it may be considered that the debt is within conservative limits. Undoubtedly, upon first consideration, a ratio of 3 per cent appears to be very small, but it must be recalled that the same property which furnishes revenues for state purposes is also required to meet the principal and interest payments on county and city debts, to say nothing of the debts of special districts that are authorized in many states for school, levee, drainage, fire, and other purposes.

The tendency of indebtedness to increase, which is an extension of a trend that was very pronounced in the 1920's, cannot continue indefinitely without bringing the debts of some states to a point that passes conservatism. It is to be hoped that the high point in the present movement has been reached and that subsequent increases in state debts will not exceed, or will fall below, the rate of increase in taxable property.

Per capita debt. The net debt per capita is another test that may be used to supplement the previous ratio. It is not necessarily true that the state having the largest ratio of debt to assessed valuation will also have the largest per capita debt. States

²⁴ The current sources of taxation for the various states may be found in *Moody's Manual of Investments: Government Securities* (New York: Moody's Investors Service).

like New York, Massachusetts, Pennsylvania, and New Jersey are wealthy in comparison with such states as the Dakotas, Montana, Idaho, or Utah. Accordingly, the former states can carry a heavier per capita debt without inconvenience.

Economic resources. A complete survey of the economic resources of the issuing state is desirable when state bonds are purchased. Such a study will cover the resources of the state, the character of its population, the nature of its industries, and other sources of wealth, and furnish a valuable check on assessed values. While it is true that the assessed valuation gives the value of the property available for taxation, the wide variation in rates of assessment makes statistical analysis on this basis unreliable. The mere fact that the law generally requires assessment at market or true value does not mean that the two approach each other in practice, for the interpretation of the law is often left to local assessors. In some states, boards of equalization attempt to remedy this situation, but in such cases the result is generally the universal adoption of a scale of values admittedly below 100 per cent of actual or true values. For this reason it is advisable to resort to a study of census figures in an effort to ascertain the actual value of productive property, as well as the value of production by principal branches of undertakings.

The nature of the industries within a state should also be considered. Where the state is limited to one industry, property values are less stable than in states with diversified industries. States that are engaged principally in mining are subject to certain weaknesses not found in other states. Perhaps the best combination is that in which both agriculture and manufacturing are present, although states with large commercial, trading, and financial interests are generally regarded as offering excellent security.

Government revenues and expenses. Another basis for testing the financial standing of state debts involves an analysis of governmental revenues and expenses. It is, of course, very important that current revenues should cover current expenses, exclusive of permanent improvement costs. Up to a certain point, it may be good financial policy to provide funds for permanent improvements by borrowing; but, where this is done, proper provisions should be arranged to retire the debt during the life of the property.

Expenses and revenues of a given state may be reduced to a per capita basis, in order to make data comparable for several

states. Data for such studies may be found in current reports issued by the Department of Commerce and its Census Bureau, especially the *Financial Statistics of States*, issued annually by the latter.²⁵

In reading the growing total of state expenditures it is necessary to recognize the enlarged scope of state activities. During the 1920's a major increase was due to highway building and maintenance in order to keep the automobile out of the mud. Recent years have also seen an extension of state aid to local education, the rise of unemployment compensation and old-age pensions, and grants for charity and relief. To care for this increased burden, not only the amount but the kinds of taxes have been increased. A much broader understanding of the problems of state functions and taxation has become necessary to analyze the revenues and expenses of this governmental unit.

Taxation of state bonds. The tax situation of state bonds differs somewhat from that of Federal Government obligations. Under our Constitution, Government obligations are exempt from all state and municipal taxes. This exemption is regarded as necessary if the sovereignty of the Federal Government is to be maintained. On a similar theory, state and municipal bonds are exempt from all Federal taxes; but such bonds may or may not be taxed by the state in which they are issued, and they may be taxed by another state if located within the taxing state or if the owner resides within the jurisdiction of the taxing state. The same exemptions that apply to the taxation of state or municipal bonds apply to the income from such bonds. The Sixteenth Amendment to the Federal Constitution gives Congress power "to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several states, and without regard to any census or enumeration." While the question as to whether the income from state and municipal bonds can be taxed under the Federal income tax has never been passed on by the Supreme Court, and no attempt has been made by Congress to tax such income, it was formerly felt that such an attempt would be declared unconstitutional. A changing attitude of the Supreme Court makes it quite possible that such income will be deemed taxable in the future. On the other hand, income from the bonds of one state is taxable where such bonds are held by the resident of another state. Thus the income from

²⁵ After the 1931 issue, publication of *Financial Statistics of States* was suspended but resumed with the 1937 issue.

Connecticut bonds is taxable where such bonds are held by a resident of Massachusetts. Many states exempt their own obligations from all local and state taxes, in the belief that this exemption enables them to borrow money more cheaply than would otherwise be the case.

Market for state bonds. The bulk of state bonds is held by institutions such as savings banks, life insurance companies, and trustees that are regulated by law as to the types of investments they may purchase. State bonds also attract wealthy individuals who wish tax exemption. The price of state issues, as a class, will of course fluctuate with money conditions, yet at any given time there will be variations in yield among the bonds. These differences may be accounted for in part by the credit which the issuing state happens to enjoy. States with a heavy debt, like Arkansas or Louisiana, will show above-average yields, especially when a period of business depression makes the question of continued solvency acute. A tendency for yields to reflect the greater demand for bonds in the older and more industrialized states also exists. Lesser yield differences appear as the result of local tax exemption and of the special requirements of banks and other financial institutions that need local bonds to secure public deposits or meet unusual investment restrictions. The better state bonds, in spite of their lesser marketability and slightly lower credit standing, will often show yields about the same as those for United States Treasury bonds. Any investment disadvantages, such as poorer marketability, that such state bonds have are counterbalanced by their complete exemption from the Federal income tax; the Treasury bonds are only partially exempt.

Civil Obligations—Municipal Bonds

How municipalities are created. Municipalities do not occupy a position of sovereignty, but are corporations created by the state and are subject to control by the legislature of the state in which they are situated. In fact, they owe their existence to charters granted by the state, as the result of either a special act or a general law. They possess and can exercise the following powers only: those expressly granted; those necessarily or fairly implied in or incident to the powers expressly granted; and finally, those that are indispensable to the declared object and purpose of the corporation. It so happens in practice that, ordinarily, the state grants to municipalities the following powers: the right to make regulations necessary to the health, safety, welfare, and comfort of the community (known widely as the police power); the power of taxation; and the power of eminent domain. It is not generally held that the power to borrow exists, unless such power is specifically mentioned in the legislative or constitutional instrument under which the municipality exists. Where the power is actually granted, it is also regulated. In other words, municipalities derive their borrowing powers from the state and are limited by the state in the exercise of such powers.

Regulation of municipal borrowing. From the investors' standpoint, therefore, it is important to know what limitations are placed on the borrowing operations of the municipality. Are these regulations adequate to protect the investor, by preventing unwise use of credit and an unwarranted expansion in borrowing operations, or are they so set up as to be of little value?

As an example of the completeness with which municipal debt may be regulated, the more important provisions of the Local Bond Act are presented here, under which the borrowing operations of municipalities in the state of New Jersey are regulated.¹ This act provides substantially as follows:

PERIODS OF USEFULNESS. Article III specifies the periods of usefulness for various kinds of improvements. It is required that bond issues be paid off within the useful life of the improvement.

SALES. Article V requires the public sale of all bonds except issues of \$10,000 or less, which latter may be sold at private sale without bidding.

FUNDING AND REFUNDING; RENEWALS AND EXTENSIONS. In order to permit municipalities to meet the emergency of depression, refunding and extensions are provided for but, in order to prevent the abuse of indefinite continuance of debt, there must be a carefully considered plan, which is approved by a state funding commission composed of the attorney-general, the State Auditor, and the State Tax Commissioner.

DEBT LIMITS. One of the principal features of the act is the establishment of a real debt limit, but it is recognized that, in view of the large number of municipalities which are over the new limit, a temporary provision must be made for necessary borrowing until the municipalities can come within those prescribed limits. The debt limits provisions, in accord with those in other states, eliminate current accounts, delinquent taxes and similar items, which very much complicated the statements under the previous law; and eliminate the numerous exemptions and deductions. The provisions require the inclusion in the gross debt of all notes and bonds whether issued or authorized but not issued pursuant to this or any other act, except tax anticipation, tax revenue, and tax title obligations. The gross debt also includes all notes and bonds for school purposes, whether authorized by the municipality or by an overlapping school district. The prescribed limit for municipalities is 7% and for counties 4% of the average of the last three assessed valuations.

In computing the net debt, there may be deducted only (a) sinking funds and funds in hand applicable to the payment of any part of the gross debt not otherwise deducted, or the equivalent, (b) notes and bonds authorized to finance publicly owned self-liquidating utilities and enterprises and (c) notes and bonds authorized for school purposes in an amount not exceeding 6% of the average of assessed valuations. The act strictly defines a "self-liquidating" purpose and provides that to the extent that the utility or enterprise is not self-liquidating within the provisions of the act, the amount of the deficit in the income (on the actual record of the previous fiscal year) applicable to interest and debt requirements, shall be capitalized at 5% and the capital sums so determined shall not be deductible. In order to permit the construction of necessary new water and sewer systems, the act permits the deduction of notes and bonds authorized to finance the construction of such a system, for one year after completion, provided that the State Board of Public Utility Commissioners shall have determined by order that the income will be suffi-

¹ *Moody's Manual of Investments: Governments* (New York: Moody's Investors Service, 1936), pp. 928-929.

cient to make the utility or enterprise self-liquidating within the definition of the act.

To permit necessary financing in numerous municipalities which it is expected will be over the prescribed limit, particularly after they shall have funded existing indebtedness, the act (Section 208) permits the authorization of notes and bonds to comply with the order of the State Board of Health or of any other superior governmental authority, or when the expenditure is the result of fire, flood or other disaster, or the recovery of judgment, unless such judgment is entered upon default or by consent. For the same reason, and in accordance with the Governor's recommendations, the act permits, in the case of a county or municipality which is shown to be over the prescribed limits as of February 28, 1935, the issuance of notes and bonds in the principal amount of 60% of debt amortized after February 28, 1935, and this is made cumulative up to 2% but ends by limitation on Jan. 1, 1940. The act also provides that notes or bonds may be issued if the net debt together with the gross school debt does not exceed 11% of the average valuation; this provision will benefit only the few large municipalities having a low school debt. And outstanding obligations and existing indebtedness may, of course, be renewed or extended, and funded or refunded.

New Jersey also in its 1933 "Cash Basis Act" provided that while a municipality might fund its then current debt, issuing any necessary funding bonds, it should thereafter make up its annual budget on a cash basis as long as any of the bonds are outstanding, subject only to amendment or repeal by the State Legislature after January 1, 1939. By a cash basis is meant that the total estimated cash receipts of the fiscal year must at least equal the total cash appropriations for the year. In estimating the receipts from the taxes of the municipality under this law, it is provided that no greater percentages of collections can be anticipated from the current and back taxes than were actually received in cash on the corresponding taxes during the preceding fiscal year. In order to realize the cash necessary to balance the annual receipts and appropriations on this basis, the Act provides that the budgets of the municipality shall include a "Reserve for Uncollected Taxes" sufficient in amount to compensate for any anticipated delinquency in taxes. Should a cash deficit occur despite the above described provisions, the Act requires that such deficit must be included in the following year's budget as a cash item. It is also required that before the adoption of such budgets, the State Auditor must certify to their compliance with the Act. The provisions as to the so-called "cash basis" are by the Act made a contract between the holders of the bonds and the municipality "enforceable by mandamus . . . by any . . . holder on behalf of all other holders," and to remain in force until the bonds are paid. This contract was not to be changed until after January 1, 1939, and then only by an act of the Legislature. The Act requires that such funding bonds be included hereafter in calculating the power of the City to become otherwise indebted; and, to assure the presence of assets behind the bonds, the Legislature has permitted the issuance of the bonds only up to the amount of the outstanding delinquent taxes of the preceding four years outstanding at the end of the preceding year. Bonds issued under chapter 60 shall mature in annual installments, the first of which shall be payable not later than two, and the last of which shall be payable not later than 20 years from the date of the bonds.

MUNICIPAL DEBT LIMITATIONS*

<i>State</i>	<i>Counties</i> 3½%	<i>Cities</i> 5-7% ^a	<i>Towns</i> 5-7% ^a	<i>School Districts</i> ...	<i>Additions and Exceptions</i>
Alabama.....					5% cities allowed 3% more for water, gas, electricity, sewers; 7% cities unlimited for water and sewers. Mobile county, 6½% more for roads. Sinking fund for all issues.
Arizona	10	4	4	10%	Cities and towns, 15% more for light, and sewers. Water revenue bonds, no limit.
Arkansas.....	...	25	...	...	Also not to exceed \$5,000,000. Only 1st and 2d class cities permitted debt. Tax levy for debt limited to .5% for general, .5% for water and electricity debt.
California	5	15	15	5	San Francisco limited by charter to 12%, excluding water.
Colorado.....	.6-1.2	3	3	3½-5 ^a	Counties with assessed valuations more than \$5,000,000, .6%. Counties under \$5,000,000, 1.2%. City water debt unlimited.
Connecticut.....	5	5	5	5	Water, gas, electricity not included.
Delaware.....	"	"	"	5	
Florida.....	"	10	10	20	Certain towns have special charters which limit debt. 7% additional for lighting, plus special assess. bonds.
Georgia.....	7	7	7	7	Sinking fund required for all issues. Certain cities and counties allowed more debt.
Idaho.....	10	10	10	4-10	Water, light, power not limited.

Illinois.....	5	5	5	5	County roads, 1% more.
Indiana.....	1-2*	2	2	2	
Iowa..	1¼-5 ^b	1¼-5 ^b	1¼-5 ^b	1¼-5 ^b	Municipal improvement bonds and tax notes deductible.
Kansas..	"	10	"	1-3¾ ^c	Cities over 50,000 limited to 5%, or, including special improvement bonds, a total of 10%.
Kentucky..	2	3-10 ^a	3-10 ^a	...	County debt over ½% must be validated by County Debt Commission.
Louisiana.....	10	10	10	10	Special exceptions for New Orleans.
Maine.....	...	5-7½ ^d	5-7½ ^d	...	
Maryland.....	"	"	"	"	
Massachusetts..... (Boston not included)	...	2½	3	...	For special purposes: cities and towns, up to 10% more.
Michigan.....	3-5 ^f	10	10	15	Utility revenue bonds permitted in excess of limits.
Minnesota	10	5-10 ^a	5-10 ^a	20	Drainage, water, electricity, etc., unlimited. Highway reimbursement bonds also not under debt limit. Certain drainage bonds are county debt.
Mississippi..	10	10	10	10	Total, including floating and water and light debt of municipalities, limited to 20%.

* *State and Municipal Compendium*, June, 1940, Dec., 1940. See source for further qualifications and exceptions.

^a Differences on basis of population.

^b Higher limit requires popular vote.

^c Debt restricted by specific acts of legislature or city charter. Details not available.

^d No limit.

^e Upper limit set by state constitution; lower limit set by statute for certain counties.

^f Differences on basis of total assessed valuation.

MUNICIPAL DEBT LIMITATIONS (Cont.)

<i>State</i>	<i>Counties</i>	<i>Cities</i>	<i>Towns</i>	<i>School Districts</i>	<i>Additions and Exceptions</i>
Missouri.....	5	3-10 ^a	5-10 ^a	...	Cities over 30,000, 10% more water and light; over 75,000, for any utility.
Montana.....	5	3	3	3	Cities and towns, 10% additional for water and sewers.
Nebraska.....	10	5-10 ^a	5-10 ^a	30	Various acts extend limits for special purposes. Cities over 100,000, utility debt unlimited. Towns under 5,000, 5% more for water.
Nevada.....	c	c	c	c	
New Hampshire.....	3	3	3	2	Water bonds and temporary notes excluded. Total debt on any territory, 6%.
New Jersey ^a	4	7	7	6	Sinking funds, self-liquidating bonds, and school bonds (up to limit shown) are deductible.
New Mexico.....	4	4	4	0	Water, sewers, not included.
New York.....	10	10	10	...	Water, self-liquidating, school, and, in New York City, certain rapid transit finance excepted.
North Carolina.....	8	8	8	5	Water, gas, electric light, power and school debt not included.
North Dakota.....	5	5-8 ^b	5-8 ^b	5-10 ^b	Self-supporting utilities excepted. Cities, 4% more for water and sewers.
Ohio.....	1-3 ^a	1-5 ^b	1-2 ^a	1/10-6 ^b	County: 1-3% on first \$100,000 of tax list; 1/2-1 1/2% on remainder. ^b Anticipation notes excluded. Certain city charters allow other deductions. Self-supporting utilities excluded.

Oklahoma.....	5	5	5	5	Water, electricity not included.
Oregon.....	^a	10	10	5	All counties limited to \$5,000 indebtedness, except 6% for roads; certain counties, 2% more for other purposes. Cities and towns: water, gas, power, and light deductible.
Pennsylvania.....	10	7	7	7	Philadelphia 10%, excluding self-supporting municipal utilities.
Rhode Island.....	...	3	3	...	Debt limit of cities and towns increased by statutory authority. (Revision expected.)
South Carolina.....	8	8	8	8	Water, sewer, and lighting not included. Total direct and indirect debt "upon any territory of this State" limited to 15%. County highway bonds and notes issued under "Reimbursement Act" with state are deductible.
South Dakota.....	5	5	5	5	Cities over 8,000, 8% additional for public utilities. County and certain high schools, 2% additional. 10% additional for water, sewers, and irrigation.
Tennessee.....	...	...	...	...	Road debt restricted by specific acts of legislature or city charter; details not available. Charters of most cities provide debt limits. County reimbursed by state for certain highway bonds.

^a Differences on basis of population.

^b Higher limit requires popular vote.

^c Debt restricted by specific acts of legislature or city charter. Details not available.

^d Percentages based on average of 3 preceding assessed valuations.

^e See last column.

MUNICIPAL DEBT LIMITATIONS (Cont.)

State	Counties	Cities	Towns	School Districts	Additions and Exceptions	
				
Texas.....	5	...	...	...	Prior to 1931, counties allowed 25% for roads and other purposes. Courthouse bonds, 2% of assessed valuation; jail bonds, 1½%; joint courthouse and jail bonds, 3½%; bridge bonds, 1½%. Cities and towns under 5,000 have <i>tax rate</i> limited to 1½%; over 5,000, to 2½% of taxable property.	
Utah.....	2	4	4	4	Cities and towns 8-12% additional for water, light, sewers after referendum.	
Vermont.....	...	10 ^a	10 ^a	10 ^a	Total municipal debt shall not exceed ten times its last grand list (i.e. one per cent of real and personal property plus taxable poll).	
Virginia.....	...	18	18	...	Excluding water and self-supporting enterprises. Personal property not included in determining assessed valuation, but being subject to tax, it actually reduces debt limit to about 10% in most instances for counties and cities. Magisterial districts, 10% for roads and bridges.	
Washington.....	1½-5 ^a	1½-5 ^a	1½-5 ^a	1½-5 ^a	Additional 5% for water, light, sewers; 10% additional for sewers, 4th class cities.	
West Virginia.....	2½	2½	2½	2½	Municipal water, light, gas, etc., not included. 2½% additional for special purposes.	
Wisconsin.....	5	5	5	5	Additional bonds by legislative enactment.	
Wyoming.....	2	2	2	2	4% additional for school districts to enlarge buildings. 4% additional for sewers. City water debt not included. Cities and towns, 1% additional for airports; 1% additional for fire equipment.	

* Differences based on population.

* Higher limit requires popular vote.

Almost without exception there will be found, either in the state constitution or in some special legislative act of the state, limitations covering not only the purposes for which bonds may be issued by municipalities, but the amount of debt which the municipality may incur. The table on pages 669 to 670 shows the general limitations placed on municipal debts by each state, in terms of percentages of assessed valuations.

Some of the other restrictions frequently found refer to the manner in which debt may be incurred. For example, many states require that all proposed bond issues first be referred to the voters for approval, except in the case of temporary loans for anticipating taxes. The length of time for which bonds may run is frequently specified, as well as the form in which they may be issued. In this connection it is interesting to note that many states are now requiring that all bonds be issued in serial form, in order to do away with the less desirable method of retirement known as the sinking fund method.

Legality of issue. The existence of these various and rather detailed limitations on the borrowing powers of municipalities, as well as further prescriptions as to the form and procedure by which municipal bonds may be issued, creates a complex legal situation that is of no small importance to the investor. A bond that has been issued without complying with all the requirements set forth in the state constitution and with the legislative acts regulating municipal bond issues in the state may be held invalid. If a negotiable instrument is void in its inception, it has no legal existence and therefore is nonenforceable. In other words, a municipality cannot make a promise or enter into a contract that is enforceable in court unless the sovereign state has first granted it the power to do so. Further, the municipality, in the exercise of its power to create debt, must issue its bonds in precisely the manner prescribed, within the debt limits specified, and for the purposes allowed. Even a technical violation of the proper procedure may invalidate an issue of municipal bonds and make them void. The argument, however, goes somewhat further. The position of all officers in charge of municipal affairs is of a fiduciary nature. Accordingly, the municipal treasurer might be in a position where he is legally unable to pay the invalid obligations of his city, even though they have been sold to innocent purchasers, unaware of the irregularity in issue. To pay in such a case would involve a criminal act. Unless the obligations of the municipality have been issued in accordance

with all the technical requirements of the law, therefore, it may become impossible to pay the obligations, however strong the moral grounds may be.

Thus, if a municipality has no authority to create a given issue of bonds, the bonds cannot be paid unless they are subsequently validated by legislative action. Or, if the bonds have been issued in the face of constitutional prohibitions, the only way to secure validation is by means of constitutional amendment. Of course, if the only difficulty lies in a technical failure to carry out the procedure of issue, then it may be necessary only to secure ratification or an estoppel. Ratification may already have occurred, if the bonds were sold for value to purchasers who had no notice of the irregularity. The mere fact that the municipality has received payment, used the proceeds, levied taxes to pay principal or interest, or both, or has extended or refunded the bonds may be considered sufficient ratification. And, where the courts fail to find ratification, they may hold, where the purchaser for value had no notice of the irregularity, that the municipality is estopped from avoiding payment on the grounds of invalidity. This estoppel applies particularly to a situation where the recital of the bond states that certain facts exist, that certain acts have been performed or certain conditions complied with, provided the properly authorized officers of the corporation made the statements.

Need for specialized legal services in purchasing municipals. In view of the intricacies involved in the whole matter of bond authorization, it is virtually impossible for the individual investor to make a proper investigation of the acts leading up to the issue, the statutes authorizing the issue, or the procedure involved in the issuance of the bonds. These are all matters for attorneys who specialize in examining and passing on the validity of municipal issues, and it is necessary for the private investor to rely on the opinion of such a firm of attorneys. In fact, it is customary practice, when one is buying municipals, to insist that a certified copy of a satisfactory legal opinion accompany the bonds. The work of determining the legality of municipal issues is so complex and so specialized that there are at the present time only a relatively few legal firms in the United States whose opinion is acceptable to the general run of municipal buyers.²

² The legal work in connection with the examination of the validity of municipal bonds is exacting and complex. The following summary of the major steps taken will give the student some idea of the scope of the task:

Validation by court decree or short statute of limitations. There is a growing tendency to overcome the danger of subsequent litigation and invalidation by means of judicial validation or a short statute of limitations. Thus, in Georgia, when a proposition to issue bonds has been adopted at an election, notice is given to a designated state official, who starts action against the county or municipality that desires to issue the bonds. An order is obtained directing the issuing unit to show cause why the bonds should not be "confirmed and validated," and a hearing is provided at which "all questions of law and fact are settled." If the proceedings are approved, a judgment is entered for the municipality or county, which is conclusive evidence of the validity of the issue. In other states it is provided that if within a relatively short period after the publication of notice of the proposed issue—say, twenty days—no objections are raised against the validity of the issue, thereafter no objection may ever be raised.

Doctrine of estoppel: New York and New Jersey. In New York and New Jersey, the legal doctrine of estoppel is used to answer questions regarding the validity of municipal bonds. The New York statutes state the following:

... an ordinance creating a funded debt may provide that the bonds therein authorized shall contain a recital that they are issued pursuant to law and an ordinance of the common council, as provided by Section 60 of the Second-class Cities Law. Such recital, when so authorized, as aforesaid, shall be conclusive evidence of the regularity of issue of said bonds and of their validity.⁸

1. A search of the statutory authority.

2. A determination that the statutory authority is not in conflict with constitutional prohibitions or limitations.

3. A finding that

(a) The bonds have been executed by the authorized officers.

(b) They are in the required form.

(c) They contain the required recitals.

(d) They are payable within the time, at the place, and bear such rate of interest as may be required by constitution or statute.

If registration or approval by any designated officer is required, it must be found that the bonds have been so registered or that such approval has been given.

4. The examiner should have assurance on which he may properly rely that the conditions necessary for the legal issuance of the bonds have actually been fulfilled. A certificate of the proper officers is usually sufficient.

5. But, if the law requires a public record as the exclusive evidence of certain facts, purchasers are charged with knowledge of the facts so appearing.

6. The examiner must know as a matter of law whether there is legal authority for the levy or collection of taxes sufficient for payment.

⁸ Cons. Laws, Chapter 54, Section 60.

Under the Local Bond Act of New Jersey, it is provided that the validity of bonds shall not be questioned in any suit commenced after the lapse of 20 days from the first publication of the ordinance and resolution authorizing them, unless issued in violation of the referendum provisions. In the case of *Dale vs. Borough of Bayhead*, bonds were sustained by reason of this provision. The act also declares that bonds reciting that they are issued under the act are incontestable.⁴

Commendable as these attempts are, nevertheless it is good practice, in purchasing municipals, to insist on a certified copy of a legal opinion rendered by a competent firm of attorneys. Not only does such legal backing offer protection to the purchaser, but a subsequent sale of the bonds is often very difficult without an accompanying opinion. Even this opinion, however, does not protect against forgery and overissuance, that is, against fraudulent signing and disposing of more bonds than were originally authorized, by officers of the municipality. With corporation bonds, this contingency is provided for by certification by a trustee under the bond indenture. There are, it is true, some trust companies which offer this service in connection with municipal bond issues, but they are rarely ever called upon to operate. The investor is therefore compelled to rely largely on the carefulness of the issuing house in checking up these matters.

Method of floating municipal bond issues. Unlike the procedure usually followed in the negotiations between the banker and the corporation, which lead up to a sale of corporation bonds, municipal bonds are generally sold at a public sale to the highest bidder. The former transaction is private and confidential, the latter, public and competitive, for most states require that municipalities within their jurisdiction sell their bonds on an open and competitive basis. The customary procedure, therefore, is for the municipality to advertise the sale of its bonds in advance and to receive and to open bids for the issue on a specified day. The municipality, however, reserves the right to reject any or all bids, if its officers feel that they are inadequate. The following advertisement will illustrate the manner in which such transactions are usually consummated:

⁴*State and Municipal Compendium*, June, 1939, p. 133.

\$400,000

CITY OF WATERBURY
CONNECTICUT

4¼ PER CENT WATER BONDS

SEALED PROPOSALS will be received at this office until 7 o'clock P.M., Standard Time, Monday,

JULY 25TH, 1927,

(at which time they will be opened in public at a meeting of the Board of Aldermen of said City) for the purchase of the following described bonds:

\$100,000 4¼ PER CENT WATER BONDS OF THE CITY OF WATERBURY, 19TH SERIES; of a denomination of one thousand dollars (\$1,000) each, dated July 15th, 1927, and payable ten thousand dollars (\$10,000) thereof on the fifteenth day of July of each of the years 1957 to 1966 inclusive. Interest payable semiannually January 15th and July 15th.

\$300,000 4¼ PER CENT WATER BONDS OF THE CITY OF WATERBURY, 20TH SERIES; of a denomination of one thousand dollars (\$1,000) each, dated July 15th, 1927, and payable ten thousand dollars (\$10,000) thereof on the fifteenth day of July of each of the years 1928 to 1957 inclusive. Interest payable semiannually January 15th and July 15th.

Principal and interest on the foregoing described bonds to be payable in lawful money of the United States of America at the First National Bank of Boston, Massachusetts.

Said bonds to be issued in coupon form convertible into registered bonds at the option of the purchaser or holder thereof, will be printed under the supervision of and certified as to genuineness by the First National Bank of Boston and their legality approved by Messrs. Storey, Thorndike, Palmer, and Dodge of Boston, whose legal opinion will be furnished the purchaser. All legal papers incident to this issue will be filed with said bank where they may be inspected at any time.

Bonds will be delivered to the purchaser on July 29th, 1927, at the First National Bank of Boston, Massachusetts.

Each proposal shall state the amount of the bid in words and numerals and should be marked "Proposals for Bonds," and addressed to Thomas P. Kelly, City Clerk, Waterbury, Connecticut, and be accompanied by a certified check payable to the order of the City Treasurer of the City of Waterbury for one per centum (1 per cent) of the par value of the bonds bid for, as a guaranty of good faith on the part of the bidder.

No bid for less than par or the face value of the said bonds and the accrued interest thereon can be accepted and the right to reject any and all bids is reserved.

THOMAS P. KELLY,
City Clerk.

It will be noted in this advertisement that the municipality makes the offer subject to legal opinion. This method is more desirable than that of having the buyer submit his bid subject to a subsequent examination, which may result in the discovery of some irregularity in the issue. Under such a condition the city might face a vexatious or embarrassing delay in receiving funds from the sale. It will also be noted that any bid to be considered must be accompanied by a deposit as evidence of good faith. Without such a requirement, a house lacking financial responsibility might become the successful bidder and be unable to consummate the transaction. Or, if the successful bid were close to the market value of the bonds, such a bidder might turn his deal over to another house at a profit. In one of the bond sales of the United States Government during Cleveland's term of office, a New York bank clerk, having no financial backing at all, entered a bid which was successful and sold it to a responsible house for a substantial sum. Bids of this kind, known as "postage stamp bids," were common at one time, but have now been made impossible by the requirement that a certified check accompany each bid.

Different types of municipalities; economic and legal status. We may next consider briefly the different types of municipalities customarily issuing bonds. Generally speaking, the term "municipality" is used to include all municipal or quasi-municipal bodies, including school and special taxing districts. Counties, although they may be called municipal corporations, as in New York,⁶ are more accurately major political subdivisions of the state; that is, legal organizations vested with some of the customary municipal powers, but not true municipalities. There is no legal difference, it is true, between the bonds of a county and those of a city; but there is the practical difference that counties may issue bonds for only relatively few purposes. Also, the total amount of county bonds outstanding is generally small in relation to the assessed valuation of the taxable property in the county.

The economic status of county bonds should require them to be rated somewhat higher than bonds of the included municipalities. In most states the county, after determining the amount of annual budget, apportions this over the various municipalities and other taxing units on the basis of assessed property therein. The county levy thus constitutes a definite claim to the revenues

⁶ *Thompson's Laws of New York 1889*, Chapter 29.

raised by the local taxing unit. Cities, on the other hand, have more or less complete self-governing powers by virtue of the typical charters under which they operate. Such powers include that of taxation as well as the incidental power of borrowing in anticipation of revenues. Thus, city bonds, as a class, probably command a slightly better price than county bonds, even though theoretically county bonds ought to rate ahead of bonds of cities and towns. Cities are likely to be run on a more businesslike basis than are counties, and to represent a more highly organized unit.

The relationship between county and city, however, makes necessary a slightly different analysis of debt and property values than is ordinarily given in the case of county bonds. The customary method for setting up a county debt statement is to state the assessed valuation of property within the county, the population, and the gross debt. The same property that provides security for the county debt also provides for the payment of all the municipal and special district debts within the county, as well as for its proper share of the state debt. Accordingly, the total debt within the county may be estimated by finding the total net debt of the municipalities within the county and adding this total to the net county debt. The state debt may then be apportioned by finding the proportion of total state assessed valuation located within the county and adding this percentage of the state's net debt to the county debt. The result so determined, added to the previous total, will give the actual debt supported by the county's property. The following example will show how these corrections may be made in a given case:

ANALYSIS OF HUDSON COUNTY, NEW JERSEY, DEBT: 1940

Net Debt—Hudson County Proper.	\$22,675,797
Net Debt of Cities Located in Hudson County	83,435,283
<hr/>	
Net Debt Covering County Area	\$106,111,080
Proportionate Share of State Debt:	
County Assessed Valuation (1940) 1,125,039,819	
State Assessed Valuation (1940) 5,489,669,000	
$\times 153,525,000 =$	
	31,463,000
<hr/>	
Total Net Debt.	\$137,574,080
Assessed Valuation.	\$1,125,039,819
Ratio Debt to Assessed Valuation	12.2%
Population (1940)	649,798
Per Capita Debt.	\$211.65

Special municipal districts. In addition to the city, there are minor political units, which may have all or part of the

powers granted to cities, depending on their size and the state in which they are situated. Towns, villages, or boroughs are usually political units smaller than the city and are endowed with fewer powers, although, so far as borrowing and taxing powers are concerned, they are in essentially the same situation as the city.⁶ From the investor's standpoint, therefore, the difference is mainly economic. The village, the borough, or the town suggests a small population, a rural community, and a lack of diversified industry.

In addition to the county, city, or town, the state may create other districts and allocate to these certain powers not delegated to the city or the town. These districts, furthermore, may be superimposed on a city or a town already in existence. Such districts may be formed for the purpose of operating schools, in which case they are called school districts; or the essential purpose may be to build and operate roads, drainage projects, irrigation, or to serve any other ends that may make the creation of such a district desirable.⁷ The legal characteristics of these districts may be described as follows:

The school district or road district is usually invested by general enactments operating throughout the state with a corporate charter, the better to perform within and for the locality its special function, which is indicated by its name. It is but an instrumentality of the state and the state incorporates it that it may the more effectually discharge its appointed duty. . . . Considered with respect to the limited number of their corporate powers, the bodies above named rank low down in the scale or grade of corporate existence, and, hence, have frequently been called quasi corporations. This designation distinguishes them, on the one hand, from private corporations aggregate, and, on the other, from municipal corporations proper, such as cities or towns acting under charters, or incorporating statutes, and which are in-

⁶The political unit following the city is given different nomenclature in different states. In most New England States it is called the town, although the term borough is used in Connecticut to designate the wider area known as the town in other New England States; in New York, the term village. In Louisiana, the term parish is used for the county unit of government.

⁷The Chicago Sanitary District was incorporated by the state of Illinois in 1889 and comprises some 442 square miles of territory, including the city of Chicago. This district was incorporated solely for the purpose of enabling a section of the state to construct and finance the disposal of sewage. It has full taxing powers and may borrow money to acquire the necessary plant and other assets to perform its work. It has no other functions. The Miami Conservancy District of Ohio was incorporated for the sole purpose of enabling the people within the drainage area of the Miami River to finance the work necessary to protect themselves against floods and washouts. Other special districts of this type are the Moffat Tunnel District including Denver, Colorado.

vested with more powers and endowed with special functions relating to the particular or local interests of the municipality, and to this end are granted a larger measure of corporate life.⁸

A different kind of district, and one which is becoming more common, is the "authority." Ordinarily, it is distinguished from the tax district by its conduct of some form of operations from which it derives revenues, tolls, or fees. The debt of such an authority becomes a first charge on this income, and in some cases the authority may have recourse to the taxing power, if this is necessary.⁹ However, it will be noted that a few tax districts formed to construct bridges or irrigation works are very similar in character.

Effect of superimposed districts on true debt of localities. The obligations of such corporations are secured in essentially the same way as are those of cities and towns—that is, by the taxing power applied to the property within the district. The presence of such districts, however, complicates the problem of analyzing municipal bonds, for it means that a further set of obligations is now imposed on the same property. Thus, where the school district is practically coterminous with a city, as it often is, the aggregate debt of the city includes not only the city debt proper but the school district debt as well. In selling the bonds of the school district, a bond house may show on the bond circular only the net school debt, assessed valuation, and population for the district, without reference to the city obligations, or to the municipality's share of the county debt. In reality, the problem of determining the exact net debt of any given municipal district at a particular time is a rather complex one. Further attention is devoted to this matter in subsequent parts of this chapter (see page 696).

Special assessment bonds. The obligations of these quasi-municipal corporations are not to be confused with special assessment bonds. The former represent the full obligations of a specially created district and are usually payable from unlim-

⁸ Dillon, J. F., *Law of Municipal Corporations* (Boston: Little Brown & Co., 1911), p. 67.

⁹ The Port of New York Authority, including a part of both New York and New Jersey, has issued bonds chiefly for the construction of bridges and tunnels that are dependent for their interest and principal for the most part upon the tolls and revenues derived from operations. The Port of New York Authority has no taxing powers.

ited taxes on the property located in such districts. Special assessment bonds, on the other hand, are not general obligations of the issuing unit unless so specified, but are payable from assessments against the specific property benefited by the expenditure of the borrowed funds. Thus, with quasi-municipal bonds—that is, school, road, irrigation, or levee districts—the problem of financial analysis centers in part on the relation of debt to the assessed value of property within the area in much the same way that a similar study is made in analyzing the bonds of ordinary municipalities. In considering special assessment bonds, however, one must recognize that only a small part of the entire property of the issuing municipality may be assessed. Such bonds, therefore, should be purchased only after the investor has studied the character of the neighborhood responsible for payment, the stability of values within its limits, and its ability to meet assessments necessary to pay principal and interest. This investigation is necessary, unless the municipality within which the specially assessed property lies pledges its full faith and credit for the ultimate payment in the event that revenues from special assessments are inadequate.¹⁰

The distinction made between special assessment and tax district bonds should not be interpreted as indicating that, as a class, the former are less desirable than the latter. As a matter of fact, there have been just as many defaults in the municipal field among certain drainage, irrigation, and road district bonds in the West and the Southwest as among special assessment bonds. The principal reason for these defaults has been the lack of adequate property values to support the charges incurred through borrowing operations.¹¹ It may happen that the incorporated district comprises farm lands of doubtful value. The issuance of bonds is undertaken to provide funds for im-

¹⁰The student will do well to study the case of Superior, Wisconsin, which defaulted on certain special assessment bonds in 1904. See *Commercial and Financial Chronicle*, Vol. 79, p. 2107.

¹¹For specific examples, the reader is referred to the following:

Denver St. Vrain Municipal Irrigation District and Denver-Greeley Valley Municipal Irrigation District, Colorado (see *Commercial and Financial Chronicle*, Vol. 92, p. 476).

San Arroya Irrigation District, Colorado (*Commercial and Financial Chronicle*, "State and City Section," May 30, 1914, p. 145).

See also List of Local Improvement District Bonds, State of Washington, in default as reported in various issues of *Bulletin*, Investment Bankers' Association, 1926 and 1927.

provements that are expected to raise values. If the project to be financed is ill-advised, or improperly executed, the added values fail to materialize, and the district becomes bankrupt. Where the debt service requires a tax so high that it is not profitable for the landowner to meet the assessments, a sheriff's sale for taxes is of little assistance to the bondholders, for it is more than likely that the price realized for the land will fail to cover taxes, and thus the bondholders will be required to bid in order to protect their equity. This condition is especially true where the district lacks fertility or an adequate rainfall. The purchase of irrigation bonds requires an intimate knowledge of the project, its engineering problem, and the ultimate increase in values that may reasonably be expected to materialize.

The mere fact that a bond is designated as an assessment bond is by no means evidence that it is payable only from assessments against the property benefited. The ill favor in which such bonds are now held has led municipalities to issue bonds to pay for local improvements, and to pledge their unlimited taxing power for the payment thereof. In such cases, however, the city undertakes to assess special taxes against the property benefited in an amount sufficient to pay the necessary interest and principal. Failure on the part of the city to collect adequate taxes does not relieve it from the necessity of meeting the payments on the bonds. This arrangement is true, for example, of special assessment bonds issued in New York and New Jersey.

Purposes for which municipalities may borrow. The purposes for which municipalities may borrow are generally stated either in the state constitution or in the statutes that set forth the borrowing powers of the state's political subdivisions. Frequently, municipalities are definitely prevented from using their credit for certain purposes, particularly for the purpose of assisting private enterprises. Municipal borrowing may be divided into temporary and funded, or long-term, debt. Temporary borrowing operations are the result of the peculiar characteristics of municipal revenues. Municipalities, of course, derive their revenues largely from taxation. Taxes, however, are collected as a rule only once a year, or at most twice a year, while the municipality is required to provide for almost continuous expenditures. To meet this situation, municipalities are frequently obliged to borrow for current expenses. This type of financing, as practiced by municipalities and governments, is

permissible, for it avoids the collection of taxes in advance. Furthermore, it is often impossible to predict exactly what revenues or expenses will be, with the result that there are inevitable maladjustments between income and expense which require temporary financing. Within limits, therefore, all full municipalities and other administrative districts are given power to resort to temporary borrowing in anticipation of taxes. The instruments sold in such cases are called "tax anticipation warrants" and are paid upon the receipt of taxes.

In contrast with this temporary, or short-term, financing are the loans of municipalities floated for the purpose of erecting public buildings, carrying out public improvements, or otherwise performing the logical functions of local government, which require too heavy an expenditure to be borne easily from the taxes of a single year. Borrowing may also be undertaken in order to acquire and operate industries vitally necessary to the public welfare. Ownership and operation of waterworks have long been recognized as proper functions of municipalities. More recently, municipal operation of electric lighting plants, gas plants, and street railways has been undertaken. If the municipality is successful in the operation of these undertakings, the revenues therefrom will offset any additional debt charges incurred in the acquisition of the properties. Such municipal debt is regarded as self-supporting; that is, revenues from operation cover charges, and additional taxation is not required to meet the payment of interest thereon. While it would be difficult to enumerate all the specific purposes for which municipalities borrow, the following list will suggest some of the more common purposes:

Erection of Public Buildings:

- City Hall.
- Libraries.

Protection:

- Police Buildings.
- Fire Buildings and Equipment.
- Flood Protection.

Public Improvements:

- Streets and Paving.
- Bridges.
- Sidewalks.
- Parks.

Sanitation:

Sewage Systems.
Incinerators.
Garbage Disposal.

Education:

Schools.

Municipal Utilities:

Water.
Electricity.
Gas.
Traction.

Municipal operation of public utilities. Whether or not it is good practice for a municipality to extend its activities to include the operation of public utilities is debatable. The operation of water systems is so simple and standardized and so necessary to a community that municipal control of such enterprises is rarely questioned. In regard to the operation of electric light and power, gas, or traction systems, however, municipal control may not be considered so desirable, for several reasons. First of all, the opportunity for mismanagement, political corruption, and extravagance in the operation of such utilities is much greater than in that of water systems. Furthermore, it is possible for those in power to conceal operating losses for many years, through inadequate maintenance and failure to charge adequate depreciation. In other words, a city may embark on an extended program of municipal operation of public utilities that requires heavy borrowing, which may be enthusiastically authorized, on the assumption that it will be self-supporting. Where municipal operation proves unsuccessful and charges are not earned, the debt becomes a charge for the taxpayer. Detroit and Seattle have probably gone further in the matter of municipal operation of public utilities than any of the other larger cities. Thus, in 1940, Detroit had outstanding street railway bonds in the amount of \$32,900,000. These bonds, issued by the City of Detroit, are direct and unlimited obligations, although at the time of their issuance it was expected that revenues from municipal operation would be sufficient to meet operating expenses and interest charges. Seattle, in the same year, had outstanding \$6,765,000 of street railway bonds and \$38,155,000 of light and power bonds. However, both the

principal and interest on these bonds are payable from the gross revenues of the utility properties which they cover and are not supported by the general taxing power of the city. Such bonds, that depend upon the earnings of a specific enterprise and are unsupported by taxation, are called "revenue" bonds.¹² Other examples of the revenue bond are the issues of certain authorities, such as the California Toll Bridge Authority and the Lower Colorado River (Texas) Authority. Through this device a city may avoid a limitation placed upon its indebtedness, and can avoid the liability of meeting charges in case of failure, although it is possible that it might feel obliged to assume responsibility in order to protect its credit.

Maturities of municipal bonds. The purpose for which municipal bonds are issued should govern, to some extent, their maturities. Obviously, it is poor financing to issue 25- or 30-year bonds in order to provide funds to build a road whose maximum life is but five years. The inevitable result of such a policy of loading up the city with long-term debts, incurred for dissipated assets, would be financial trouble. The theory of municipal borrowing is based largely on the idea that improvements will add to the general value of taxable properties, or that the improvements obtained with the borrowed funds will be of benefit in subsequent years. On this basis, it is proper that the cost of acquiring these improvements should be deferred until the added values in taxable properties have materialized, or that their cost should be passed on in part to subsequent generations through borrowing operations that defer payments. To defer payments beyond the life of the improvements is, however, entirely illogical.

Some states recognize the dangers that might result from lack of control over bond maturities, and prescribe the maximum length of time that municipal bonds may run. Massachusetts has one of the most detailed laws in this respect. The statutory provisions of this state limit municipal borrowing by restricting the purposes for which debts may be incurred, as well as their maturities. Thus, cities and towns may incur debts, within specified limits, for the following purposes and payable within the time specified: ¹³

¹² For more extended discussion, see L. S. Knappen, *Revenue Bonds and the Investor* (New York: Prentice-Hall, Inc., 1939). Treatment of these bonds when defaulted is covered in Chapter 6.

¹³ *State and Municipal Compendium*, June, 1935, p. 39.

<i>Purpose</i>	<i>Maximum Years</i>
Bridges—Stone, Concrete, or Iron.. . . .	20
Cemetery Lands.	10
Electric or Gas Utilities	20
Emergency Appropriations Suitably Approved.	1
Equipment—Departmental.	5
Judgments, Payment of.	1
Land and Public Buildings	20
Park Land.	30
Roads—Macadam.	5
Roads—Permanent, as Stone or Brick.	20
Sewers and Drainage.	30
Sewers—Connections with Buildings.	5
Sidewalks	5
Street Railway Properties	10
Walls and Dikes on Highways.	10
Water Works—Land.	30
Water Works—Buildings, etc.	20
Water Works—Mains.	5-25

Other states set arbitrary limits on the time within which local bond issues must mature. In New Hampshire and Vermont, all local bond issues must mature within twenty years. The limit in Pennsylvania, exclusive of Philadelphia, is thirty years; in West Virginia, thirty-four years; in Illinois, Wisconsin, and Missouri, with exceptions, twenty years; and in Oklahoma, twenty-five years. In Colorado county bonds are permitted to run not less than ten years, and city and town bonds not less than ten, nor more than fifteen years.

Formerly, the accumulation of sinking funds from annual revenues was required in order to provide sufficient cash to meet an issue of bonds when it became due. There is, however, too much opportunity for mismanagement in the operation of these funds to make this a desirable method of meeting the situation. A great many of the states now require the serial method of payment of local bond issues, and some states regard this requirement as a substitute for specific maturity limitations.

Financial analysis of municipal bonds. Up to this point, the discussion has centered on the general aspects of municipal financing rather than on the specific factors that make the bonds of various municipalities differ in safety and desirability. In a broad way, it may be said that those economic factors which contribute to the wealth and growth of a local community contribute also to the financial strength of its bonds. The amount of debt outstanding, in relation to resources and population, is also important. The location of a municipality in respect to

natural phenomena, such as floods, earthquakes, and tornadoes, must be considered. Finally, the age of the municipality, its past debt history, and the character of its population are all matters that affect the credit of a given community.

Local industries. The presence of diversified industries within the territorial limits of a local district has the same value to the district as was noted in our discussion of state bonds. Diversified and growing industries, of course, provide a permanent and growing income for the community. Another factor of importance is the location of the municipality in respect to transportation. Cities like St. Louis, Dallas, Kansas City, Omaha, and Des Moines are railroad centers, and hence they serve as distributing points for the surrounding country. Even if there were no important industries in these cities, they would still have an element of stability because of their location as junction points for several important railroads. In contrast with cities that enjoy varied industries or strategic locations are the one-industry communities, or communities whose principal industry is mining. Akron, Ohio, for instance, is largely devoted to the production of rubber goods. Fall River, Massachusetts, and Woonsocket, Rhode Island, are essentially textile communities. Tulsa, Oklahoma, owes its wealth largely to the oil fields in its immediate vicinity. The prolonged and severe depression in the Northern cotton industry has seriously affected property values in Woonsocket and Fall River. A decline in Oklahoma oil production might conceivably result in a serious decline in property values around Tulsa. Important information regarding the amount of capital invested, the character of the industries, and the value of the products of the leading industries in more important cities is available in the *Census of Manufactures*, published by the Bureau of the Census of the United States.

Where a local district is situated close to a large city and serves primarily as a residential suburb, the presence of industry is not desired. Newton and Brookline serve in this way for Boston. A large number of such communities are located in the vicinity of New York. In fact, some towns as far as thirty miles from New York serve principally as residential areas for the metropolis. Such towns are satellites of the metropolis and derive their general character from the economic character of the latter. The type of people who make their residence in

these communities will determine the wealth and standing of the particular town.

Ratio of net debt to assessed valuation. Although a general survey will indicate the permanency that may be expected in relation to values in a given case, it fails to give specific information in respect to the municipality's ability to meet promptly the principal and the interest on its debts. A more detailed economic analysis is required. The most obvious indication of a municipality's ability to pay lies in the ratio of net debt to the assessed value of the property within its area. Such a ratio also makes possible a comparison of the status of different municipalities by the reduction of net debt to a common denominator.

Method of ascertaining net debt. Before making the actual computations necessary to arrive at this ratio, however, one must first define his terms. For instance, what is meant by "net debt"? One would obviously be in error were he to use as a basis for computations the actual total debt of the municipality, for it often happens that sinking funds are held in the city's treasury against outstanding bonds. It would be perfectly proper, therefore, to deduct sinking funds from total debt in order to ascertain net debt. Let us consider, however, still another situation. Suppose that City A operates its own water system, which was acquired at a cost of \$2,000,000, the entire amount of which was secured by a bond issue. Revenues from this system, however, adequately cover charges. These bonds, accordingly, do not result in a charge on the taxpayer. City B, on the other hand, does not own its water system, which is privately operated. In order to put these two cities on a comparable basis, it is necessary to eliminate water debt from the former to arrive at net debt. In the same way, it is usually considered good practice to eliminate all self-supporting debt to obtain the net figure.

Treatment of overlapping areas. As contrasted with these deductions, however, are the possible additions due to overlapping districts. In some states it is customary to create special school districts more or less coterminous with municipalities. These school districts borrow for the purpose of erecting schools, thereby relieving the municipality of that burden, but the same property is assessed to meet this debt as that of the municipalities. As already explained, it is proper to add special district

debts, or a pro-rata share of them, to the debt of the municipality. The same applies to county and to state debt, which should be apportioned among the municipalities whenever local tax rates include the burden of such debts.¹⁴

Proper ratios of debt to assessed valuation. Assuming that the proper methods for determining the net debt of a municipality have been established, the question now arises: What should be the ratio of debt to the actual or adjusted assessed value of property?¹⁵ This question cannot be answered precisely. For one thing the size of the municipality will make some difference in the ratio. Undoubtedly the larger the city, the more diversified its industries are likely to be, and the more likely it is that values will be stable. Consequently, for large cities, a ratio of debt to assessed value which is higher than that for very small communities, whose main source of income lies in one local industry, may be accepted as conservative. The Bureau of the Census divides cities having a population over 30,000 into five groups on the basis of size, and prepares for each group the ratio of total debt to total assessed valuation. The following table gives these data for the five groups for the years 1930 and 1937:

ASSESSED VALUES AND DEBT STATISTICS FOR CITIES WITH
POPULATION OVER 30,000: 1930 AND 1937*

	1930			1937		
	<i>Assessed Valuations Subject to Tax (Millions of Dollars)</i>	<i>Net Debt at Close of Year (Millions of Dollars)</i>	<i>Ratio of Net Debt to Assessed Valuation</i>	<i>Assessed Valuations Subject to Tax (Millions of Dollars)</i>	<i>Net Debt at Close of Year (Millions of Dollars)</i>	<i>Ratio of Net Debt to Assessed Valuation</i>
Groups of Cities†						
I.....	42,422	3,875	8.35%	37,482	4,374	11.67%
II.....	8,490	696	8.20	6,224	804	12.92
III.....	16,427	1,249	7.60	13,010	1,224	9.41
IV.....	9,407	610	6.48	.....	.....	.....
V.....	6,488	427	6.58	.....	.....	.....

* *Financial Statistics of Cities*, Bureau of the Census, United States Department of Commerce, 1930 and 1937.

† Group I, population of 500,000 and over; Group II, 300,000-500,000; Group III, 100,000-300,000; Group IV, 50,000-100,000; and Group V, 30,000-50,000. Groups IV and V omitted after 1931.

One would expect a gradual reduction in the ratio of debt to assessed value from the large to the small municipality. The

¹⁴ See p. 696, for an illustration of this procedure.

¹⁵ Note that we say "actual or adjusted assessed value." Where a city assesses property at less than its real value, the assessed value should be revised as nearly as possible to 100 per cent. For a further explanation see p. 668.

logic of this tendency has already been discussed. The average ratios in the preceding table also give some idea as to what ratios may be considered as conservative. Statistics that gave true values of taxable property and the total overlapping debt would be more satisfactory in presenting an accurate picture of affairs. If all overlapping debt has been allocated to the municipality under consideration, one is probably justified in saying that a 10 to 11 per cent ratio of net debt to the true assessed value figure would be conservative for a city with a population of 500,000 or over. It may be argued that a 10 or 11 per cent ratio is so low that no question could ever be raised concerning the security behind the bonds. However, such a ratio might be regarded as a fair maximum for total debt if the true value of property were used as the base instead of the frequently understated assessed valuations. A rationale for a 10 to 12½ per cent maximum might be worked out somewhat as follows:

1. The maximum tax levy on real estate, the basis of most of the general property tax, should not exceed 2 per cent.

2. Not more than one half of this levy, or one per cent, should be required for debt service.

3. If it is assumed that one half of the debt service is for interest and one half for principal retirement, then one half of one per cent might be used for each. The one half of one per cent used for interest would carry a sum twenty times as large—that is, an amount equal to 10 per cent of the taxable property—if the bonds paid five per cent. With a four per cent rate of interest, a given amount of money would carry a bond issue twenty-five times as great, or in this instance 12½ per cent of taxable property. If a similar line of reasoning is applied to the principal retirement portion it will be seen that, if an amount equal to the initial interest requirement is used to pay off bonds, the debt amortization of 5 per cent a year would wipe out the debt in twenty years.

Opinions will vary as to what is a fair maximum tax rate, how much of the tax levy can be reasonably devoted to debt service, and what are likely bond interest rates and suitable average periods for debt retirement. However, this hypothetical approach shows a method of studying the problem of municipal debt analysis that gets at the fundamental relation—that of debt charges to debt-paying ability.

As net debt increases over 10 or 12 per cent of taxable values, the tax rate must be correspondingly raised to meet debt service. This situation discourages industry and may even lead it to seek less heavily taxed locations. Furthermore, the reluctance of a municipality to levy burdensome taxes has in the past furnished the impelling motive for repudiation with or without reliance on technical grounds of invalidity or illegality of issue. Where debts are within conservative limits, therefore, the occasion for default is lacking.

In the case of the small municipality, it is justifiable to take a somewhat smaller ratio as conservative. Just where the dividing line between large and small municipalities should be drawn is a matter of judgment. One may logically make only a slight distinction between cities of 100,000 population, and up. But when one considers municipalities with a population of 50,000 or under, much greater attention should be paid to the ratio of debt to assessed valuation. Thus, in establishing theoretically conservative ratios, one would probably set maximum limits for cities in Groups II, III, and IV which would be only a little lower than those for Group I; but in respect to cities in Group V, and particularly in respect to cities and towns with a population of under 30,000, a decided lowering of the limits is desirable. A 6 per cent ratio may be set for cities coming in Group V, and, for smaller localities, particularly where population is under 10,000, the limits should probably be lowered gradually to 5 or 4 per cent.

Theoretical limits of this nature are merely rough guides, however, and therefore the special factors that are often present to alter the situation should not be overlooked. Compare, for example, a town with a population of 3,000, located in a mining district, with a town of equal population, situated close to a large city of the best type. Undoubtedly, to allow for the greater stability in values found in the latter town, one should insist on a much lower ratio for the first town than for this one. A study of recent defaults in municipal bonds will show that they have occurred almost entirely among special assessment issues or among issues of small localities lacking diversification. On the other hand, with the rough limits that have been set up as a guide, the investor, in an effort to test the reasonableness of a municipality's debt ratio, is in a position to compare its relative debt with a wide range of other factors, including type

and diversification of industry, character of the population, age of the community, its location, its nearness to other municipalities, its legal control over borrowing operations, and its liability to widespread damage from natural phenomena.

Per capita debt. Another test that supplements to some extent the ratio of net debt to assessed values involves a determination of the net debt per capita of the municipality. The possible errors that may arise in the process of assessment, and the avowed policy in some states of allowing assessments at rates substantially below the actual value of the property, make it advisable to find a means of checking the ratio of debt to assessed value. Frequently the percentage of underassessment for individual cities can be learned and an adjustment made, but the per capita debt figure provides a simpler ratio. Despite the fact that the actual per capita wealth of communities varies rather widely, per capita debt figures do indicate to some extent the ability of a municipality to discharge its obligations. Even after allowance is made for the rather wide differences that exist in the per capita wealth of communities, a per capita debt of \$350 for a municipality of, say, 100,000 population would appear high. On the other hand, a per capita debt of \$50 would appear very conservative. A question arises at this point as to what figures may be adopted as normal. Again, one comes to the inevitable conclusion that the larger the city or the municipality, the larger the per capita debt may be without its placing an undue financial burden on the community. The reasons for this conclusion have already been discussed in part. An additional factor must be explained, however: the fact that wealth is concentrated in large cities, thus resulting in larger wealth per capita in such localities. Theoretically, this factor does not enter into the situation in a discussion of the ratio of debt to assessed valuation, for the variable unit, wealth, has been used as the denominator. Actually, however, much of the wealth that is concentrated in larger communities is intangible; that is, it is in the form of stocks, bonds, and other evidences of wealth which are not easily assessed. Hence one may even conclude that actual wealth increases more rapidly than assessed values as the size of the municipality increases.

Proper ratios of debt to population. The clue to the proper limits for per capita debt is likewise found in the census compilations. Based on data for 1930, the following averages appear

for the various groups of municipalities established by the Bureau of the Census:

PER CAPITA ASSESSED VALUATION AND DEBT STATISTICS FOR
CITIES OF OVER 30,000 POPULATION: 1930*

Groups of Cities†	GROSS DEBT PER CAPITA				PER CAPITA ASSESSMENT SUBJECT TO THE	
	Total	General * Departments Municipal Services	Public Service Enterprises and Investment	Net Debt Per Capita	Assessed Valuation	Estimated True Value
I.	\$291.57	\$200.74	\$90.84	\$185.88	\$2,226.55	\$2,721.43
II.	197.45	142.56	54.89	148.32	1,809.07	2,191.13
III.	149.29	112.37	36.92	114.42	1,505.46	2,037.14
IV.	128.59	105.80	22.79	96.86	1,494.27	2,017.88
V.	122.64	98.02	24.61	91.30	1,385.86	1,861.05

* *Financial Statistics of Cities*, Bureau of the Census, United States Department of Commerce, 1930, pp. 510, 561. See footnote 16 below with regard to later data.

† Group I has a population of 500,000 and over, Group II, 300,000-500,000; Group III, 100,000-300,000; Group IV, 50,000-100,000, Group V, 30,000-50,000.

The very rapid growth of municipal debt between 1925 and 1930 for all classes of cities is shown by the following table, which indicates also a tendency for assessed valuations to move closer to estimated true values:

PER CAPITA ASSESSED VALUATION AND DEBT STATISTICS: 1925*

Groups of Cities	Net Debt per Capita	PER CAPITA ASSESSMENT SUBJECT TO GENERAL PROPERTY TAX	
		Assessed Valuation	Estimated True Valuation
I.	\$147.86	\$1,801.19	\$2,201.58
II.	116.61	1,610.47	1,942.21
III.	91.77	1,373.43	1,769.20
IV.	74.72	1,315.53	1,728.43
V.	64.34	1,156.84	1,602.89

* *Financial Statistics of Cities*, Bureau of the Census, United States Department of Commerce, 1925, pp. 414, 455.

Here is sufficient evidence that per capita wealth decreases with the size of the municipality. Furthermore, the per capita debt for groups varies directly as the size of the municipalities within the group varies, indicating that it is current practice for the smaller municipalities to keep down their per capita debt as compared with the larger municipalities. In view of this situation, it is entirely logical that any theoretical limits should take this tendency into account. Although all maximum limits should be accepted as tentative and applied in the light of surrounding conditions, the amounts indicated in the table below are suggested for a conservative standard. These limits,

it will be understood, apply when the net per capita debt is found by including not only the direct debt of the community but also the apportioned share of the debt of overlapping tax districts, and subtracting sinking funds and any fully self-supporting debt. The census data previously given are based on the debts of the municipalities proper, with no adjustment made for overlapping areas.

LIMITS SUGGESTED AS CONSERVATIVE
FOR NET PER CAPITA DEBT

Group	Amount
I.....	\$175
II ..	150
III....	125
IV....	90
V....	85
Population less than 30,000..	40 to 85

Municipal revenues and expenses. Further information relative to the manner in which municipal finances are administered is available through the Bureau of the Census of the United States Department of Commerce, which issues annual analyses of revenues, expenditures, and debt for all the states and many of the more important cities.¹⁰ The reports permit an analysis of the major classes of revenues and expenses and a comparison with the figures of similar cities. Figures on indebtedness, assessed valuations, and tax levies are also reported.

Municipal tax rate. Another test of the financial operations of a municipality is found in the tax rate applied to the value of property within the area. A total tax rate between \$20 and \$35 per thousand of corrected assessed values may be considered as reasonable; a higher rate should require an explanation. It will be found that a rate of \$30 or over places a burden on the property owner that reacts unfavorably on the community. Industry is burdened either directly by the high tax rate or indirectly through the higher rents that must be paid.

Delinquent tax collections. Ordinarily the power to tax is so potent that no question arises as to the certainty of collection. The bulk of local taxes is levied upon real estate, and

¹⁰In 1933 an executive order was issued suspending the collection of financial statistics of cities with a population of 30,000 to 100,000 for the years 1932, 1933, and 1934, a suspension that has continued to date. Individual reports are issued for cities with population over 100,000 and treated as an annual volume called *Financial Statistics of Cities*. Some reports appear as much as two years after the close of the reported year.

failure to pay means the seizure of the property by the community, and its subsequent sale. When, however, business depression fastens itself upon a locality, inability to pay may result in a delinquency. The shrinkage of municipal revenues may prove embarrassing and produce defaults. It was for this reason that in the years immediately following 1930, municipal security investors carefully scrutinized the reports of the percentage of taxes collected. Some communities pursued an extremely conservative policy, and by strict economy succeeded in living within, or nearly within, their reduced cash income. Others incurred debt that will have to be retired when back taxes are collected. Still others, either unable or unwilling to economize, and without ability to borrow, were obliged to default. Undoubtedly the figures for tax collections during a period of business depression afford a valuable index of municipal financial stability.

Municipal defaults during depression. Because extreme stress provides a test of investments, the following summary is a valuable and concise picture of the extent of municipal defaults under the most adverse conditions:¹⁷

The outstanding facts with respect to State and Municipal debt defaults are these:

1. No State government is in default.
2. Counties, municipalities and special districts in default number approximately 2,600 and their aggregate indebtedness represents about 10% of the total indebtedness of all States, municipalities and other special districts.
3. Few municipalities in the default classification have failed to pay interest, and unpaid principal actually past due represents only a fraction of the total indebtedness. It has been estimated that the actual amount of past-due principal and interest only slightly exceeds 1% of the total State and municipal debt of the country.
- 4 The depression in municipal finance appears to have touched bottom some months ago when one State and 37 cities of 30,000 or more population were in the default column. These communities together with eight cotermious school districts which were also in default, accounted for about 38% of the gross debt of all cities and school districts in that population group. As of this date, we find that 14 of these cities have met all past-due payments or have worked out a readjustment plan acceptable to a large majority of their creditors. The total debts of the remaining 23 cities and the eight school districts is only 5% of the aggregate debt of all cities in the group.
5. As of November 1, 1934, a summary shows 2,654 counties, municipalities and other taxing districts in 40 States to be in default. Of this number, 1,992

¹⁷ A memorandum presented to the 40th annual meeting of the National Municipal League at Pittsburgh, Pa., November 26, 1934, by Shanks, Sanders, Jr. (Editor), *The Daily Bond Buyer*, December 1, 1934, p. 2850.

were counties, municipalities and districts in default on general obligation bonds and 662 were drainage, irrigation and other special assessment districts. Eliminating these 662 special assessment district defaults as representing a special problem which is not strictly speaking a municipal debt problem, it appears that about one-half of the 1,992 municipal corporations in the default classification are extremely small places and represent a relatively insignificant part of the total debt of all defaulting municipalities. With a view to simplifying the picture, we have listed by States, the 1,067 municipalities in default having a population of 5,000 or more and find that they are scattered through 37 States.

6. A breakdown of these 1,067 defaults by States indicates that the default situation presents a serious problem in the following States where defaulting municipalities number 50 or more: Florida, Louisiana, Michigan, New Jersey, North Carolina, Ohio and Texas. In a few other States, while the number of reported defaults is not large (from 10 to 50), the situation is sufficiently serious to affect adversely the credit of the States and their municipalities and to indicate some fundamental weaknesses in public credit. In this group are: Alabama, Arkansas, Kentucky, Mississippi, Oklahoma, South Carolina and Tennessee. There are 14 States in these two groups so that in the remaining 34 States there are either no defaults or the problem appears to be that of a comparatively few individual municipalities, rather than one of Statewide importance.

7. Recently an attempt was made to ascertain the gross debts of all municipalities of 5,000 or more population on the default list and a figure of roughly \$2,225,000,000 was arrived at. Of this debt, \$1,899,436,474 is accounted for by defaults in the 14 States named above as representing the areas in which the default situation is serious:

<i>Group 1</i>		<i>Group 2</i>	
(9)* Florida.....	\$303,137,887	(6) Alabama.....	\$35,037,100
(1) Louisiana.....	85,426,650	(1) Arkansas.....	159,156,180
(21) Michigan.....	487,445,513	(2) Kentucky.....	18,558,500
(18) New Jersey.....	209,138,135	(4) Mississippi.....	23,694,415
(10) North Carolina..	151,123,576	— Oklahoma.....	8,074,824
(24) Ohio.....	235,159,785	(2) South Carolina..	17,540,632
(5) Texas.....	110,240,259	(2) Tennessee.....	60,703,019
(88)	\$1,581,671,805	(17)	\$317,764,670

* Figures in parentheses represent number of cities of 10,000 or more population in default.

8. Referring again to the defaulting cities in the 30,000 or more population group, it is interesting to find that 25 of the 37 cities are located in the first group of seven States where the default situation has been the most serious, whereas only seven of these cities are in the second group of States just mentioned, the remaining five cities are located in States where no general condition of default exists.

9. In the case of several of the larger cities which must still be considered as being in default, rapid progress is being made in restoring the bonds of these communities to a completely current basis.

In connection with municipal debt difficulties, it is interesting to note that in 1934 the Federal Government passed a

municipal debt adjustment law, designed to permit financially troubled municipalities to work out a readjustment with creditors, somewhat after the manner of private corporations. Under this law the Federal court will not entertain a plan until a majority of creditors agree that the situation equitably requires a debt compromise or adjustment. Even then, the plan cannot succeed unless the court is convinced that it is fair, and has the approval of creditors holding three fourths of the debts. While the law has been applied directly in but few instances, it has served to eliminate the obstructive tactics of unreasonable minority creditors who might hope, by voicing objections, to attain financial advantages.

Explanation of municipal analysis card. Up to this point, the more important financial factors to be analyzed in a study of the obligations of municipalities have been considered. In order to provide a convenient method for making the necessary computations and presenting the preceding data on a comparable basis, a "municipal analysis card," illustrated in Figure 22, has been devised along the lines indicated in the paragraphs below.

The first section of the card is devoted to matters of general interest, such as the following: the county and the state in which the municipality is located; its date of incorporation; the type of corporation; whether it is a city, town, borough, or school district; the character of its population—whether predominantly white, or part white and part Negro; its past debt history; the debt limits established for the municipality; whether or not the district is subject to disastrous natural phenomena; and the nature of essential industries within the district. In this way a general picture of the municipality is given. The second section provides for a record of the actual debt, according to the purposes for which it was issued. The headings in this section require no discussion. Additional space is left for listing debt which cannot be classified under the printed captions, such as temporary certificates, assessment debt, and the like. The aggregate of these debts will constitute the total direct obligations of the municipality. To this direct debt must be added the city's share of any special district debt, of the county debt, and also of the state debt. The most practical basis for apportioning this overlapping debt is to ascertain: (a) the assessed valuation of city property; (b) the assessed valuation of property given for each overlapping district; and (c) the net debt

of each overlapping district, county, and state. Assuming, now, that we are dealing with districts that include the entire municipality as well as additional area, we next find the proportion of (*b*), the assessed property values in the larger area, that is found in (*a*), the city or town itself. This ratio (which would be $\frac{a}{b}$) is applied to (*c*), the net debt of the larger area, and the

result ($c \times \frac{a}{b}$) is considered the debt to be apportioned to the city proper for each overlapping district. Where the special district constitutes an area coterminous with the municipality, or where it is wholly within the boundaries of the municipality, its entire net debt should be added to the total direct obligations thereof. On the other hand, where the area of the special district covers only a part of the municipality and extends beyond it, a difficult situation is created, in that it is often impossible to ascertain exactly what portion of the district actually belongs to the municipality. Situations of the latter nature, however, are rare. Generally the municipality lies entirely within the area of a larger district, except in the case of school or sanitary districts, which are sometimes coterminous with the municipality or are found entirely within the latter's boundaries. Sometimes the debt of a major overlapping area, such as the state debt in the example of New Haven in the later years, is not supported by local property taxation and is then excluded.

The total of direct obligations plus the apportioned district, county, state, and special debt constitutes the total gross debt of the municipality. From this must be deducted sinking funds and self-supporting debt, for reasons already given. The net debt so obtained will indicate rather more accurately than the "net city debt proper" the actual extent to which the property within a given area has been "pledged," so to speak, for the payment of debt service. It is this figure, therefore, that we shall refer to as the municipality's net debt.

The final section of the card provides for recording the assessed valuation of the property subject to tax, the basis of assessment, the ratio of debt to assessed valuation, the population, the per capita debt, and the tax rate. Subsequent sections are reserved for entering not only a general municipal rating but also a rating on special issues. A system may be worked out whereby municipalities may be rated for investment purposes. The first step is to consider a perfect situation which would rate as 100 per

Figure 22—Municipal Analysis Card*

ISSUING CORPORATION: New Haven. COUNTY: New Haven. STATE: Connecticut. Second City in State. INCORPORATED: 1784.
 CHARACTER OF CORPORATION: Municipality. DEBT LIMIT: 5%. TAX LIMITS: None. POPULATION, 1940: 160,257. CHARACTER
 OF POPULATION: White. SUBJECT TO NATURAL PHENOMENA: No. PAST DEBT HISTORY: Clear. INDUSTRIES: Firearms, cutlery,
 collections. VALUE OF PRODUCTS, 1937: \$106,503,000. NUMBER OF ESTABLISHMENTS: 409.

DIRECT OBLIGATIONS (End of Year)	1930	1937	1938	1939	
1. School Bonds.....	\$ 522,000	\$ 323,000	\$ 312,000	\$ 298,000	
2. Water Bonds.....	3,859,000	1,698,000	1,642,000	1,490,000	
3. Street Road or Paying.....					
4. Gas and Electric Light.....					
5. Building, Improvement and Parks.....	8,664,000	7,145,000	8,112,000	7,616,000	
6. Miscellaneous—Funding.....	103,000	1,650,000	1,500,000	1,350,000	
7. Miscellaneous—Sewer.....	2,335,000	2,030,000	2,670,000	2,610,000	
8. Miscellaneous—Library, Hospital etc.....	135,000	80,000	79,000	78,000	
9. Miscellaneous—Fire and Police.....	293,000	215,000	205,000	194,000	
10. Miscellaneous—Tax and Notes.....	2,574,000				
11. TOTAL DIRECT OBLIGATIONS.....	18,485,000	13,145,000	14,520,000	13,636,000	
12. District Debt Apportioned to City.....					
13. County Debt.....					
14. State Debt—Net.....	1,964,218	none	none	none	
15. Special Debt.....					
16. Other.....					
17. TOTAL GROSS MUNICIPAL DEBT.....	20,449,218	13,145,000	14,520,000	13,636,000	
18. LESS DEDUCTIONS: WATER DEBT AND SINK- ING FUND.....	1,027,759	908,777	906,940	729,243	
19. NET MUNICIPAL DEBT.....	19,421,479	12,236,223	13,614,060	12,906,757	

20. Total Assessed Valuation.....	338,040,530	371,458,595	371,803,060	368,173,883	.....
21. Assessed Valuation of Real Estate.....	.....	.....	.....	.....	.....
22. Rate of Assessment.....	100%	100%	100%	100%	.....
23. Tax Levy.....	7,808,326	8,318,154	8,316,392	8,276,754	.....
24. Per Cent of Taxes Collected at End of Year.....	91.1%	93.1%	93.9%	94.6%	.....
25. Ratio—Net Debt to Assessed Valuation— Uncorrected.....	5.74	3.29	3.66	3.51	.....
26. Ratio—Net Debt to Assessed Valuation— Corrected.....	5.74	3.29	3.66	3.51	.....
27. Population.....	162,660	160,280	160,260	160,260	.....
28. Net Debt per Capita.....	119.39	76.35	84.95	80.54	.....
29. Tax Rate (per \$1000)—Uncorrected.....	25.50	27.50	27.50	27.50	.....
30. Tax Rate (per \$1000)—Corrected.....	25.50	27.50	27.50	27.50	.....
31. General Municipal Rating.....	.....	.....	.....	.....	.....
32. Rating by.....	.....	.....	.....	.....	.....
33. Rating by.....	.....	.....	.....	.....	.....
34. Average Yield of Bonds.....	.....	.....	.....	.....	.....

* Compiled from Moody's Manual of Investments Government Securities.

cent. This basis would presuppose a municipality with a clear record of debt payment for the past thirty years, with no outside hazard such as threatens San Francisco, Galveston, lower Florida municipalities, or Mississippi basin districts; with satisfactory debt limits; and with reasonably varied industries. It would further presuppose that the ratio of net debt to assessed valuation, per capita debt, and tax rate come within the limits prescribed as conservative. To allow for variations from these ideal conditions, certain deductions are made. Little advantage is gained at this time from devising a rigid set of deductions, for the entire matter is obviously one of judgment. The chief advantage of such a plan is the fact that, whatever system of penalties is used, municipalities will be rated in order of preference. It will further appear that the yields at which the bonds of various cities sell do not always register their credit position. In other words, it is often possible to select bonds with a yield of from one eighth to one quarter of one per cent higher than actually appears warranted by the relative risk present. Furthermore, by making the preceding analysis annually for the bonds he holds, the investor is able to purchase bonds of second-grade municipalities with small risk of loss. The debt situation can be constantly watched, and any undue extension of credit can be detected in time to enable the investor to dispose of his holdings.

Municipal bonds, tax exemption, and yields. Municipal bonds are exempt from all Federal taxes except estate and gift taxes, and may or may not be exempt from local taxes. It is possible that exemption of state and municipal bond interest from the Federal income tax may be abolished in the near future as a result of a change in the attitude of the Supreme Court. In Pennsylvania, New York, Connecticut, and Massachusetts, among other states, all or certain municipal bonds are exempt from local as well as Federal taxes. Because of this exemption, the municipal bonds of these states have a better local market, and consequently they usually sell somewhat higher than so-called "general market" municipals of the same grade. The exemption that municipals enjoy from Federal taxes, as well as their inherent safety as a class, causes them to sell at yields lower than those at which high-grade corporation bonds sell. This yield difference should vary somewhat as income tax rates are changed. Other factors enter into the situation, however, and no clear-cut relation between this yield differential

and the tax rates is discernible. In general, the logical market for municipal bonds may be found among wealthy individuals who are subject to the heavier Federal income tax rates, and among institutions for which municipals are legal investments under the statutory and other restrictions which govern their operation. Generally, the yield obtained from the best state and municipal obligations is so much lower than the return to be realized from the best corporate bonds that institutions find it disadvantageous to invest heavily in the former.

Foreign Investments

Classification of foreign investments according to issuing unit. In the field of foreign investments, many of the same distinctions are found, as among domestic investments, but there are some that are peculiar to the former field. The chief bases of classification of foreign investments are:

1. Type of security—as bonds, preferred and common stocks.
2. Class of issuer—civil, and corporation.
3. Currency—whether payable in the currency of the United States, in that of a foreign country, or in two or more currencies at the option of the bondholder. This last type of bond, known as a “multiple currency bond,” has the advantage of being payable in the bondholder’s own currency, but permits him to elect payment in another currency if it becomes advantageous for him to do so.¹
4. Direct or portfolio investments. The term “direct” is used here in a special sense to denote those investments made indirectly through ownership of foreign properties and securities by American corporations.

The discussion in this chapter will be primarily concerned with portfolio investments that are directly available to the investment public. Of these the bulk have been civil obligations—that is, government bonds—which have been generally payable

¹ For a list of foreign government dollar bonds which have the option of payment in one or more other currencies, see *Moody's Manual of Investments: Governments and Municipals* (New York: Moody's Investors Service, 1939), p. a61.

in the currency of the United States. The study of portfolio investments helps one to appreciate some of the problems of American corporations which have substantial foreign holdings.

Foreign civil obligations. For many years civil obligations have been the main type of foreign security traded in in this country. Only since 1925 have the securities of privately owned foreign corporations been absorbed on a large scale by domestic financial markets.

A further classification of foreign government securities is possible. The obligor may be a central government, such as the Dominion of Canada, or the United Kingdom; or the issuing unit may be some political subdivision of a state. Thus, in Canada, one finds not only bonds issued by the Dominion government, but civil obligations issued by the various provinces, such as bonds of the Provinces of New Brunswick, Ontario, and Alberta. Bonds are also issued by individual municipalities, such as Ottawa, St. John, and Montreal. This same situation applies in the case of the civil obligations of many other countries.

Foreign corporate securities. The corporate or joint stock form of business undertaking is prevalent in many of the more developed countries of the world. Accordingly, there are organizations engaged in various lines of manufacture and mining; in the furnishing of steamship, railroad, or public utility services; and in the banking, insurance, or investment fields. Among some of the more important foreign corporate issues floated in the United States in 1929 and 1930 were the following:

<i>Country and Enterprise</i>	<i>Date of Issue</i>	<i>Amount Issued</i>
Canada:		
Canadian National Railways Company 5's of 1960 ..	1929	\$60,000,000
Canadian International Paper Co.....	1929	25,000,000
Ontario Power Service Corp... ..	1930	20,000,000
Chile:		
Lautaro Nitrate Co., Ltd.....	1929	32,000,000
Mortgage Bank of Chile.....	1929	20,000,000
Cuba:		
National Hotel of Cuba.....	1929	6,250,000
Denmark:		
Copenhagen Mining Co.....	1929	7,000,000
Germany:		
Harpen Mining Corp.....	1929	10,000,000
Rhine-Westphalia Electric Power Corp.....	1930	20,000,000

<i>Country and Enterprise</i>	<i>Date of Issue</i>	<i>Amount Issued</i>
Italy:		
Ernesto Bredo Co.	1929	5,000,000
General Italian Edison Electric Corp.	1930	6,161,000
Japan:		
Toho Electric Power Co., Ltd.	1929	\$11,450,000
Netherlands:		
Royal Dutch Co.	1930	40,000,000
Sweden:		
Kreuger & Toll Co.	1929	50,000,000

This table has been presented to emphasize the fact that private enterprises organized in foreign countries may be financed in this country in very much the same way that domestic enterprises are financed; that is, by the issuance of stocks and bonds. The financial analysis of the foreign corporation, as well as a study of its management, characteristics, and products, should be made along lines similar to those prescribed for domestic corporations. The difference between the two types of securities arises from the fact that the foreign corporate issue suffers or benefits from the political and the economic status of the country in which it is situated, whereas, in making our analysis of domestic securities, we regard this phase of the question as a *constant*.

Prior to the first World War almost all countries were on a gold standard. As a result, rates of exchange between countries varied but slightly, and there was little likelihood of either loss or gain through a change in the value of a foreign bond as a result of fluctuation in the value of foreign currency. The strain of war conditions upon monetary systems and international trade broke down these stable relations, and exchange rates became chaotic. The money of important countries, like Germany and Russia, became worthless, and a new system had to be employed. In other countries, like France and Italy, a return to the gold standard and stable exchange rates was effected by re-establishing the money unit with a greatly reduced gold content. Some countries, like Great Britain, were able to return to the old monetary basis. The United States came to enjoy a marked financial prestige because of her retention of the gold standard throughout this period. As other countries gradually returned to a gold basis during the 1920's, the hope of a renewal of the former stability in exchange rates grew.

These hopes were dashed when, after 1929, the world-wide depression produced financial strains that upset trade and money everywhere. In 1933, the United States, while still possessing huge gold reserves, left the gold standard, and when the return was effected, it was done under rules which permitted further alterations in the gold content of the dollar.

While investors continue to speak of the "risk of exchange," it is clear that with our own country embarked upon an uncertain course, there is a possibility that our currency may be less stable than those of some countries while more stable than those of others. The risk of depreciation in an investment payable in the currency of another country still exists, but appreciation is also a possibility now. Should the monetary policies of the United States produce inflation, the currency of a foreign country upon a gold standard or upon a paper standard behind which skillful management was present might rise materially in terms of dollars. Bonds payable in dollars would, of course, be unaffected by fluctuations in the exchange of the debtor country except indirectly as such variations affected the ability of the debtor country to meet its fixed dollar obligations.²

Prewar position of United States in international finance. Prior to the World War I the United States did not play a prominent part in international finance, for several reasons. In the first place, investment opportunities in the domestic market were sufficient to absorb a very large share of our available capital. The rapid industrial growth that took place in this country during the latter part of the nineteenth and the first part of the twentieth centuries was responsible for this situation. In fact, far from having funds available for investment abroad, there were large amounts of foreign capital invested in the United States. A survey of American history during the nineteenth century shows conclusively that we were a debtor nation until the outbreak of the first World War. In 1843 a

² An exception was found in the case of a few countries, like France, which chose to honor the gold clause in their dollar bonds after the United States left the gold standard. As a result, their bonds appreciated very considerably. Thus, the Republic of France 25-Year Sinking Fund External 7 per cent Gold Loan of 1924, due 1949, showed the following annual price range:

	1930	1931	1932	1933	1934
High.	121	121½	121	173	189
Low. . . .	112½	108¾	108¾	112½	160

committee of the House of Representatives estimated the amount of state and city debt held outside the United States at \$150,000,000.³ In 1853 the amount of foreign capital invested here was estimated by the Secretary of the Treasury at \$222,000,000;⁴ by 1860, the amount had risen to approximately \$400,000,000. The Civil War, however, resulted in the resale of a substantial amount of railroad and other securities in the domestic market.

It is estimated that in 1873, when the panic occurred, foreigners owned American securities to the amount of \$1,500,000,000. In 1880, this amount had increased to \$2,000,000,000, of which about \$1,535,000,000 represented investment in American railway securities.⁵ At the close of the nineteenth century the amount invested by foreigners in this country was approximately \$3,300,000,000;⁶ and at the close of 1913, between \$4,000,000,000 and \$5,000,000,000.⁷ On the other side of the ledger, Americans were holding foreign securities in the amount of about \$2,600,000,000,⁸ leaving the balance of debt of this country to foreigners between \$1,500,000,000 and \$2,500,000,000.

Foreign trade prior to the war. Another reason that explains in part our lack of interest in foreign investments prior to the first World War is to be found in our foreign trade relations. At no time in its comparatively brief history has this nation been dependent on foreign markets as an outlet for manufactured goods. We did not have the commercial interests abroad that either Germany or England had prior to 1914, and it was not necessary for us, therefore, to advance capital for the purpose of stimulating trade. Prior to 1914 our imports and exports, including invisible items, approximately balanced. It is true that there was consistently an excess of merchandise exports over merchandise imports; but this excess was offset by payment for such invisible items as interest on loans held by foreigners, payments for banking and insurance services, tourists' expenditures, and remittances abroad by immigrants. In short, our prewar position in world trade was not such as to encourage an extension of loans in foreign countries.

³ House Report 296, 27th Cong., 3d sess., March 2, 1843, pp. 3, 7.

⁴ Sen. Exec. Doc. 42, 33d Cong., 1st sess., March 2, 1854, p. 2.

⁵ *Publications*, U. S. National Monetary Commission, 1911-1912, Vol. 20, p. 173.

⁶ *Yale Review*, Vol. 9, pp. 265-285.

⁷ *Economic World*, New Series Volume 24, p. 413.

⁸ Fisk, H. E., *The Inter-Ally Debts* (New York: Bankers Trust Co., 1924), p. 306.

Effect of war on America's financial position (1914 to 1919). The emergency created by the World War made it necessary for European belligerent nations to use a large part of their capital surplus for military purposes, and thus cut off the source from which undeveloped countries outside the war area had been accustomed to borrow. Furthermore, the belligerents themselves, particularly the allied countries, purchased heavily in the American markets both before and after our own entrance into the war in 1917. England, France, and Belgium relied heavily on America throughout the conflict for all sorts of supplies and services.

Four ways for financing these war purchases were open to European nations. Payments might have been made with gold or with other goods. Up to a certain point gold was used as a means of paying for war purchases. The amount of gold exported to this country as a partial means of offsetting adverse trade balances for the period from June 30, 1914, to December 31, 1919, inclusive, was as follows:

NET IMPORTS OF GOLD INTO UNITED STATES*

(Thousands of Dollars)

<i>Period</i>	<i>Amount</i>
June 30, 1914, to Dec. 31, 1915.....	308,532
1916 (calendar year).....	530,197
1917 (calendar year).....	180,570
1918 (calendar year).....	20,973
1919 (calendar year).....	291,651†

* *Statistical Abstract of the United States*, 1925, p. 437.

† Excess of exports.

The use of gold as a means of meeting continuously adverse trade balances, however, was limited to the amount of gold that could be spared by the banking systems of the belligerent countries. Similarly, any attempt by European countries to increase the export of merchandise to us at a time when all energies were being directed toward the production of war supplies would have been impractical.

Another method involved the resale, on a large scale, of domestic securities in American markets; it is estimated that between 1914 and 1919 the value of returned securities amounted to about \$2,000,000,000.⁹

⁹ *Review of Economic Statistics*, Vol. 1, p. 246. D. R. Crissinger places the value even higher, his estimates running as high as \$3,000,000,000. *Economic World*, New Series Volume 24, p. 413.

The fourth, and most widely used, method of financing war purchases in this country was by means of loans floated here. It is estimated that up to 1919 total loans placed in the United States amounted to very nearly \$9,000,000,000. This sum was made up as follows:¹⁰

Private Loans Floated in United States. . . .	\$1,520,100,000
Direct Loans of United States Government to European Governments	7,319,500,000

Aftereffects of the war. The effects of the war did not end with the declaration of peace. All of the belligerent nations of Europe were impoverished. There was a pronounced lack of capital goods with which to re-establish industries on a peacetime basis. Devastated regions had to be restored. Currencies required stabilization. In short, the rehabilitation process required large amounts of capital. At the same time, South America, Japan, and other countries which previously had looked to Europe for capital, now had to seek new sources of supply in the absence of a capital surplus in the markets of Europe.

The only nation in a position to meet these enormous demands was the United States. The great productive machinery of this country after the war was in better shape than ever before, and the United States had acquired a large share of the world's gold supply, which could be used as the basis for expanding credits. At the same time, this country had a distinct interest in seeing rehabilitation on a large scale in Europe, not only in order that the market for American goods might be reinstated, but also in order that these nations might become better able to repay their war debts. For trade reasons also it was desirable to encourage the development of newer countries, such as the South American Republics.

These factors, together with the abundance of loanable funds seeking employment and the more efficient use of our gold supply as a basis of credit, made possible by the development of the Federal Reserve System, contributed to our position as a creditor nation during the decade following the war. The significance of this new role can be best discussed, however, after the extent of this movement and the economics of international trading and lending have been studied.

Foreign investments of United States. Since our primary interest lies in securities available for private investment, the

¹⁰ *Review of Economic Statistics*, Vol. 1, p. 248.

indebtedness of various foreign countries to the United States Government will merely be mentioned here, in spite of its size. On November 15, 1940, the total principal amount held was more than \$11,000,000,000, a very substantial sum even when compared with our own national debt.¹¹ This debt was chiefly incurred by the nations with which the United States was allied in the World War—Great Britain, France, and Italy. The whole amount was in default in 1940 with the exception of the sum owed by Finland, which by agreement postponed payments that year.

The statistics of so-called private loans, which foreign governments and corporations have sold in the United State in recent years, indicate the widespread interest that the investing public of this country has shown in foreign investments. The table on page 44 shows the amount of foreign securities, exclusive of refunding issues, floated in the American market during the years 1921 to 1934, inclusive. An estimate of private long-term American investments abroad at the end of 1939 appears in the following table:¹²

AMERICA'S FOREIGN INVESTMENTS: 1939

(Millions of Dollars)

<i>Area</i>	<i>Direct</i>	<i>Portfolio</i>	<i>Short Term</i>	<i>Total</i>
Canada & Newfoundland.....	2,023	1,699	59	3,781
South America.....	1,574	939		
West Indies.....	752	84		
Central America & Mexico	637	26	122	4,134
Europe.....	1,332	749	197	2,278
Asia.....	420	170	199	789
Oceania.....	123	99		
Africa.....	98	19	18	383
International.....	26			
Total.....	6,985	3,785	595	11,365

Direct investments in the preceding table represent the investments made by American corporations in either foreign property or foreign securities. They concern us only indirectly as they might play a part in the analysis of some American corporation securities (for example, International Telephone &

¹¹ For a detailed statement of accrued interest as well as principal owed by countries, see *Annual Report of the Secretary of Treasury*, 1939, p. 796.

¹² An estimate by Amos E. Taylor, Chief, Finance Division, Bureau of Foreign and Domestic Commerce *Commercial and Financial Chronicle*, July 27, 1940, p. 488.

Telegraph Corporation, and American and Foreign Power Company). Portfolio investments represent foreign bonds and stocks, chiefly foreign government bonds owned by American investors. Since 1930 a considerable shrinkage in American holdings has resulted from the repurchase of dollar bonds by the nationals of debtor countries. Market values have also been generally lower than the par values shown in the table. Losses have been extended by the invasion of several countries by Germany.

Foreign investments and international trade: theory of international payments. It is impossible for a country to have an adverse balance of trade continuously for an indefinite period, both visible and invisible items considered, except in the case of gold-producing countries, where gold assumes the status of any other commodity and serves to create the balance. Conversely, it is impossible for a country to have a continuously favorable balance of trade, invisible and visible items considered. The reasoning behind these statements involves an analysis of the effect of gold exports and imports on prices. Normally, exports are used to pay for imports. If the balance of trade of a particular country is unfavorable—that is, if imports are in excess of exports—either gold must be used to meet the deficit or the deficit must be made up by borrowing. However, for reasons that are obvious, borrowing operations cannot be continued indefinitely.

The exodus of gold from a country tends to lower prices, and makes the country a good market in which to buy and a poor one in which to sell. Thus a series of forces is set up which tends to bring exports and imports into balance. The reverse situation applies in countries that have favorable balances of trade for a long period of time. Such countries can lend funds abroad for some time; in other words, they can export capital (or “import securities”), but sooner or later gold movements will cause an adjustment in the price level within the country which will tend to restore the balance of exports and imports.

Visible and invisible trade items. The first effect of a lack of balance between exports and imports is felt in exchange rates. If a country is selling more than it is purchasing, its exchange—that is, the price of drafts on banks within its borders—advances in foreign countries. Similarly, if it is continually

importing more than it is exporting, its exchange falls in other markets, and bills on foreign countries advance in price. The reason for this situation is that, customarily, payments in international trade are made by means of drafts against *balances* or *credits* in the country in which payment is to be made, and, when trade is not balanced, there is a maladjustment between the demand and the supply of drafts on foreign countries.

Credit balances of the nature just described can be created by: (1) sale of goods or services abroad; (2) borrowing; (3) shipment of gold abroad; or (4) receipt of interest on loans previously made abroad. Similarly, such balances have to be drawn against to pay for: (1) goods purchased; (2) principal or interest on loans; and (3) services purchased abroad. In other words, in addition to the value of goods exported and imported, a number of other items require consideration when fluctuations in exchange rates are being studied. Goods exported or imported are known as visible items, whereas loans, interest payments, and payments for insurance and shipping are known as invisible items, because they do not appear in the customs figures. These latter items, however, may have just as important an effect on exchange as visible items.

Loans, exchange rates, and trade balances. When the United States makes a loan to a foreign country, the first effect is similar to that of an importation of goods. Credits are created here in favor of the foreign nation, against which payments may be made for goods and services. In other words, if a particular nation is anxious to increase its imports from this country without shipping gold here, or without changing any of the other factors in the situation, the most obvious method would be to negotiate a loan in our markets. Similarly, if a nation that imports more than it exports wishes to stabilize exchange, the same method can be adopted. Or, if a nation, lacking an export surplus, wishes to secure gold from our country to stabilize its currency, it can do so by borrowing.

However, there is always a day of reckoning. In a very short time interest becomes due, and the payment of interest to this country has exactly the same effect on exchange rates as an increase in our exports would have: the debtor country's currency would tend to fall in value, and the creditor country's currency, to rise. In order to offset this tendency, the borrowing country must ship gold, increase its exports of goods, or

engage in more borrowing. It is hardly necessary to add that any payment of principal has an effect similar to the payment of interest.

Thus a nation may encourage loans as a temporary means of facilitating exports to countries whose current trade balances are unfavorable. Loans may likewise be made in new and undeveloped countries, in order to enable them to purchase goods. It must be borne in mind, however, that eventually the repayment of the interest and the principal will depend on the ability of the borrowing nation to develop an excess of exports over imports. The use of gold, except by gold-producing countries, is not a permanent method of financing foreign payments, as the world's stock of gold is limited, amounting currently to between 26 and 27 billion dollars in the present dollar unit, of which amount the United States holds over 80 per cent (February, 1941).¹⁸ Foreign loans can only *defer* actual payment for foreign purchases, for eventually payment must be made with other goods or with services, either to return the principal, or as a series of annual lesser payments for interest, unless, of course, the country defaults.

The importance of scrutinizing the purpose of foreign loans, therefore, becomes evident. If a nation is not to increase its productive resources as the result of a given loan, if it is not to better its position as an exporting nation, or if it does not have a normal excess of exports over imports, then the chance of an ultimate repayment of the loan and possibly of the interest thereon is slight. However good the intentions of a nation are, however rich it is in undeveloped natural resources, for practical purposes payments of foreign obligations must be made, for the most part, in bills of exchange on other nations, and the balances against which these are drawn are generally created by the sale of goods.

The United States as a creditor nation. In the light of the foregoing discussion of abstract principles, it is interesting to review the course of some of the leading elements in the international situation in the postwar period. The balance of trade

¹⁸ In contrast, out of \$20,313,000,000 world monetary gold stocks in January, 1934, the United States held \$6,829,000,000, or 34 per cent. Unusual gold imports in recent years have resulted partly from the inability of foreign countries to obtain other means of paying for essential imports, especially British armament purchases, and a huge flight of capital from war-threatened countries. Data from *Federal Reserve Bulletin*, September, 1940, p. 1001 and *Commercial and Financial Chronicle*, April 12, 1941, p. 2319. Also see comment, in former reference, p. 925.

in terms of merchandise exports and imports alone, gold movements, and foreign security flotations are shown in the following table:¹⁴

LEADING FACTORS IN UNITED STATES
TRADE BALANCES: 1921-1938

(Millions of Dollars)

Year	Excess Merchandise Exports	Net Gold Imports	Foreign Security Flotations
1921-1925 (average) ..	947	265	705
1926-1930 (average) ..	744	33	1,158
1931-1935 (average) ..	312	480	56
1935.....	235	1,739	...
1936.....	33	1,117	23
1937.....	265	1,586	3
1938..	1,134	1,974	25

The figures for merchandise movements would have to be supplemented by data on the invisible items, such as shipping and insurance services, interest and dividends, immigrant remittances, and spending on foreign travel, but such items are generally subordinate.¹⁵ Furthermore, the figures for foreign securities sold here, although confined to new capital issues, fail to show either the effect of securities repurchased by foreigners or their purchases of American issues. However, even if allowances were made for the incompleteness of the data, it is apparent that the general picture is one of a newly created creditor nation which continued to show an export trade balance and settled the account by taking gold and securities on a scale that could not last for a long time. Furthermore, difficulties, in the form of extremely high tariffs, were placed in the way of merchandise imports which might have created the means of paying a return on this debt and so prevented its expansion to an even more burdensome level.¹⁶ The breakdown that occurred in the depression years following 1929 will be considered after a discus-

¹⁴ Sources of trade balance data: *Statistical Abstract of the United States*, 1939, p. 458. Foreign securities data: *Commercial and Financial Chronicle*, Jan. 7, 1939, p. 20.

¹⁵ For estimates covering all the items that enter into the international balance, see *The Balance of International Payments of the United States* (annual), United States Department of Commerce.

¹⁶ For a popular but forceful statement of the dilemma of the nation which wishes to export but not to import, see Wallace, Henry A., *America Must Choose* (Boston: World Peace Foundation, 1934).

sion of the analysis of the individual security has been presented.¹⁷

Investment analysis of foreign loans. Corporate loans abroad require practically the same type of analysis as domestic corporate loans. The enterprise, the product, the management, and the financial status of the corporation are all factors to be considered. However, it is quite unnecessary to reiterate here all that has been said on this subject.

In addition to considering the standing of the particular enterprise, however, the investor in foreign corporate securities should give strict attention to a number of general factors that are closely related to the country in which the industry is located. For example, an electric light and power company in Japan may be operating under a very able management, and may have a good financial set-up, but knowledge of these facts alone is insufficient. The prospective investor should know specifically the manner in which the enterprise will be affected by the commercial law of the country, as well as something about the moral character of the people. He should also have data relating to the wealth of the country, its banking facilities, the character of its government, the fiscal policy of the government, and various local tax laws. In fact, a number of general factors reflecting the status of the country in which the industry is located must be considered even when foreign corporate securities are purchased. These same factors should also be analyzed when the obligations of foreign governments are studied. For this reason, we may consider them once and for all without specific reference to either foreign corporate or foreign government obligations.

Factors affecting credit status of issuing country. The credit of a nation, as well as the credit of corporations within its jurisdiction, is vitally affected by its political position. The nominal form of government is irrelevant, but the inherent capacity of a nation for self-government is crucial. Compare the political stability of a country such as England with some of the Central American Republics, where elections are frequently followed by revolutions. An unstable government, obviously, has an adverse effect upon the country's credit, whereas a stable

¹⁷ For a graphic presentation of price movements, of both foreign and domestic bonds, for the years 1925-1937, see the *New York Stock Exchange Bulletin*, December, 1937, p. 7. For later monthly data see *Survey of Current Business*.

government creates confidence in the obligations of a nation, as well as those of business operating within its borders.

The international position of a country is likewise important and is closely related to its political position. The manner in which the country was founded, the length of time it has been in existence, and the solidification of national borders are all matters of interest to the creditors of a nation. The political hazards of Poland as a "buffer" state after its re-creation under the Treaty of Versailles, and the similar problems of such countries as Yugoslavia and Czechoslovakia were reflected in the high yields obtainable on their dollar obligations long before the threat of Germany had materialized in overt war. In contrast the credit of Switzerland, whose borders have remained untouched for centuries, ranked high as long as her obligations were outstanding in the American market.

Constitutional status of legal system. The legal system under which a country exists is likewise of importance to the investor. In a country such as England, where an established body of constitutional and common law exists, there is no question regarding the rights of parties to enter contracts, nor of the ability to enforce them at law up to the ability of the borrower to pay. There is less certainty, however, as to the status of contracts made in countries such as Mexico or Russia. The importance to the investor in foreign securities of a well-developed system of laws and a strong judiciary cannot be overlooked.

International standing. The results of World War I emphasized the necessity for considering the position of borrowing countries in respect to the possibility of future wars. For centuries the Balkan States have been the war center of Europe, a fact which has been reflected in their credit standing. Lenders will consider the likelihood of embroilment in war and the probable strength of a country to repel invasion. The events of recent years have shown the difficulties of prediction.

The international standing of debtors also varies in respect to independence. In dealing with a national government, one deals with a sovereign power. In the case of federal unions, the states or provinces occupy essentially the same subordinate status as our states bear to the United States. The various states of Brazil or the provinces of Argentina are examples. Then there are so-called autonomous colonies, such as the self-governing dominions of the British Empire and the colonies of the Netherlands. Another form of dependency is mandated territory, such

as Syria, which is under a French mandate. The investor is naturally interested in the political relations of the area in which he commits his funds.

Character of people. Many investors regard the moral status of a state as one of the most important factors to be considered in making foreign loans. In the minds of these individuals, ability to pay is important, to be sure; but, after all, the attitude of a people toward its obligations is the real test as to whether they will be promptly met. For centuries Great Britain has met her obligations promptly, and today, in spite of a very heavy debt, she has an enviable reputation among all the nations of the world. The same applies to her subjects. Quite the reverse is true of certain Central and South American Republics. Mexico has the resources and the ability to pay her debts, but she has always regarded them lightly. Defaults by Mexico on her foreign loans have been by no means uncommon. In July, 1914, the federal debt went into default. Since that time various settlements have been negotiated, only to fail of execution. Political instability and a lax attitude toward debt explain this country's poor record.

Industrial and social development. The industrial and social development of a country is an index of its ability to meet its obligations when due. It is not always possible to measure this factor absolutely, but statistics are nevertheless available which throw some light on the subject. Thus the educational standard of a people, and its corresponding advancement in industrial skill, may be judged by literacy statistics that indicate the proportion of the population able to read and write. The nature of the leading industries of a country determines to some extent its productive capacity. In general, a country with well-developed manufactures and commerce is likely to have greater taxable wealth and better debt-paying habits than one devoted wholly to agriculture and the extractive industries.

Bonds with specific security. While it is true that moral character and past performances are real factors in public credit, the asset and income position of a country is also an important item to consider in making foreign loans. Regardless of the intention of a people to meet its obligations, a lack of adequate assets and productive power may make payment impossible. Furthermore, the more difficult payment becomes, the greater the urge to default.

The security behind foreign government loans may be either

specific assets or the general taxing power. In some cases, special assets are assigned as a pledge to secure the payment of a debt. The property so pledged may be in the form of stocks and bonds, as in the case of the former Government of France two-year secured convertible 5½'s of 1917, or the Republic of Panama 5½'s, due 1953. In the former case, underlying collateral was pledged to the amount of 20 per cent above the loan itself. In the latter case, \$6,000,000 of the \$10,000,000 paid by the United States in purchasing land for the Panama Canal was set aside in a so-called "constitutional fund" and was invested in first mortgages on New York City real estate.¹⁸ The issue was also secured by being made a first charge on the annual payment made by the United States under the Panama Canal Treaty. The income from this fund was pledged as partial security for these bonds.

In some cases, although less frequently, the assets pledged may be in the form of goods or property. Thus, in 1922, Brazil floated the 7½ per cent coffee security loan. These bonds, although a direct obligation of the government, were specifically secured by a mortgage on about 4,535,000 bags of coffee. Warrants for this coffee, which was warehoused at Santos, Rio, Victoria, and London, with insurance policies, were deposited with the issuing bankers or their agents abroad until the coffee was sold. The government further agreed to maintain in the hands of the bankers a quantity of coffee, the value of which, at 80 per cent of its current price, together with the market value of any other security in the hands of the bankers, should be equal in the aggregate to the par amount of the bonds outstanding, together with one year's interest on such bonds.

Still another form of specific security frequently offered to secure foreign loans consists of the revenues from certain taxes, from excises and imposts, or from government monopolies. Excise taxes that are pledged may be on certain widely used staples or luxuries. The Republic of Cuba's 5 per cent loan of 1904 is secured by hypothecation of 15 per cent of the customs receipts of the Republic of Cuba, which have preference over any other assignment of customs receipts. The Republic of Colombia's 6 per cent external gold loan of 1911 and 1913 is also secured by a pledge of customs duties.

In contrast with specific security of this nature, consisting of a pledge of state-owned property or revenue from some tax, the

¹⁸ For the income record of this fund, see *Moody's Manual of Investments: Governments and Municipals* (New York: Moody's Investors Service, 1941).

majority of governmental issues rest upon the general credit of the debtor, which is supported by the power to tax the wealth owned by those who reside in that area. Sometimes a government may own revenue-producing assets useful in supporting debt and yet not pledge them. Thus, in a circular advertising the Bavarian 6½ per cent external loan of 1925, it was set forth that the state "owns revenue-producing properties valued at more than \$500,000,000. Of these, the most important are the state forests and the state hydroelectric systems. Other properties include vineyards, mines, and metallurgical works, the state bank, the state mint, medicinal springs and baths, and the world famous Hofbrau brewery." Some indexes of the general wealth of a nation are: (1) the area of the country (classified as to uses); (2) railroad mileage (often reduced to a per 1,000 square miles of territory, or to a per capita, basis); (3) number of telephone instruments (frequently reduced to a per capita basis); (4) motor vehicles (reduced to a per capita basis); and (5) estimated total wealth and wealth per capita.

Government revenues and expenses. The investor, in analyzing the loans of foreign nations, must also study the fiscal policy under which these nations operate and the results of such operation. Taxes form the principal basis for government revenues. In theory, the government has the right to exercise its taxing power without restraint, but in practice there is a limit to such power. The taxing power of a country varies to some extent with its population, but it also varies in proportion to wealth and productivity. The tax rate per capita, therefore, is not in itself conclusive evidence of the taxing power of a nation. In view of the fact that not all wealth is used productively, the best test of the taxing power of a nation, in the last analysis, is its total income. Whether total wealth, gross individual income, or net individual income available for taxation is used as a basis, it is more satisfactory for comparative purposes to reduce data to a per capita basis. When income is used as a basis for determining taxing power, it should be recalled that the rate of increase in taxing power will be faster than the rate of increase in income. As the income of the taxpayer increases, his ability to contribute to the government increases progressively rather than proportionately.

Other sources of government revenues are earnings derived from proprietary holdings, from fees for administrative services, from excise taxes, and from other forms of indirect taxation.

Against total revenues must be set the total expenses of the government. The ability of a nation to meet its obligations is determined not only by receipts but by the net balance, surplus, or deficit remaining after all operating expenses and interest on its public debt have been met. Whether or not a nation is really accumulating a surplus can be determined only by a study of its budget for the fiscal period, which study involves an analysis of public income and expenses as officially stated by its government.

Government debt. The net debt of a nation has the same significance with foreign loans as with domestic civil loans. The investor is naturally interested in the extent to which assets and earning power are already encumbered by previous obligations. Thus net debt may be reduced to a per capita basis, and significant comparisons may be made with the net per capita wealth, or the per capita income of the country.

When one is analyzing foreign securities, it is often helpful to carry the analysis of public debt even further. In the first place, a nation's debt may be productive or unproductive. Debts incurred for the purpose of constructing railroads, for example, are productive; but debts incurred to finance huge armaments are unproductive. A preponderance of the latter debts is highly undesirable. Debts may be further classified as internal or external, depending on whether they are held primarily within the state or by foreigners. The payment of principal and interest on internal debt is accomplished by the transfer of credits from one set of inhabitants to another, and causes no exodus of wealth across the country's borders. The payment of external debt is more difficult, for here there is involved a transfer of funds across the borders of the state, and payment in gold, in goods, or in services is necessary. Thus the external debt of a country payable in United States dollars involves the problem of the debtor's acquiring that currency. The internal debt, however, may be paid with depreciated currency. No doubt, it has already occurred to the reader that, for nations with depreciated currencies, the payment of external loans is difficult in proportion to the depreciation that occurs in their own currencies. Consequently, while it is customary to say that the American investor bears no currency risk when he holds an external, or dollar, bond, actually, the risk of default is increased when currency depreciation increases the burden of his debtor in purchasing the needed dollar exchange. The classification of public debt into short-term, floating or unfunded, and long-term debt is helpful, for it indi-

cates the extent to which immediate refinancing will be required.

Value of currency. The currency of a country is an effective barometer of its credit standing. The value of a country's currency may be considered in terms of either internal purchasing power or of the goods it can command in foreign trade. Internal purchasing power is measured by index numbers, which indicate the extent to which prices within the country, in terms of its currency, have advanced or declined in reference to a base period. The external value of a currency is determined by reference to exchange quotations. Prior to the World War I, the exchange rates of most nations did not vary widely from the par of exchange. After the war, however, both internal and external currency values depreciated severely in many countries of the world. This depreciation was occasioned largely by a failure on the part of these countries to balance their budgets and by the use of fiat money or bank deposit inflation on a large scale to meet deficits.

An excellent statement of the close relationship between domestic financial conditions and the foreign exchange position of a nation is clearly set forth in the following paragraph appearing in the report of the Dawes Committee on Reparations:¹⁹

For the stability of a country's currency to be permanently maintained, not only must her budget be balanced, but her earnings from abroad must be equal to the payments she must make abroad, including not only payments for the goods she imports, but the sums paid in reparations. Nor can the balance of the budget itself be permanently maintained except on the same conditions. Loan operations may disguise the position—or postpone its practical results—but they cannot alter it. If reparation can, and must, be provided by means of an inclusion of an item in the budget—i.e., by the collection of taxes in excess of the internal expenditure—it can only be paid abroad by means of an economic surplus in the country's activities.

This statement contains an excellent lesson for the foreign investor. Long-term investments in the securities of countries which consistently fail to balance their budgets should be avoided. Countries with continuously unfavorable trade balances and depreciated currencies should likewise be avoided. Where trade balances remain unfavorable for a long time, or where the internal currency of a country is depreciated and unstabilized (these two phenomena are frequently associated), the payment of external obligations is made increasingly difficult.

¹⁹ "Report of the First Committee of Experts to the Reparations Commission," April, 1924, Part I, No. VIII (d).

Foreign trade. The relation of the foreign trade of a country to its position as a debtor nation is highly important. Since the external obligations of a nation, as well as those of its subjects, require payments in foreign countries, the whole problem of the international balance of payments is involved. We have already considered the various items included in the balance sheet of international payments. If a nation is ultimately to pay interest or principal on its debt, it is necessary that credits exceed debits in the form of exports over imports, or in the form of an excess of services rendered to, over those performed by, foreigners. The capacity of a nation to meet the service on its foreign debt, therefore, is closely related to its total international trade balance, both visible and invisible items considered.

Need for analysis of terms of specific loan. In the purchase of foreign loans, particularly government bonds, a number of factors pertaining to the terms under which the loan is issued must be considered. It is true that some aspects of the instruments under which foreign securities are issued are similar to those found in the corporate deed of trust or mortgage under which domestic loans are floated, or, in the contracts for domestic civil loans. It will serve no useful purpose to duplicate our previous discussion in this respect. We shall, however, emphasize briefly certain matters in regard to foreign loans that should be given special attention. For reasons already stated, particular attention should be paid to the purpose for which borrowing is undertaken, especially government borrowing. Loans made for purely productive purposes, for rehabilitation of devastated regions, and for currency stabilization, where properly supervised, are proper and legitimate. Loans made for military expenses and for the purpose of balancing current budget deficits indicate poor financing and should be discouraged.²⁰

Payment and place of issue. External loans are usually adapted to the terms of the lending country. Consequently,

²⁰ Quotation from an address by President Coolidge, Nov. 19, 1925 (see *Commercial and Financial Chronicle*, Nov. 21, 1925, p. 2482).

"If rightly directed they [American loans] ought to be of benefit to both lender and borrower. If used to establish industry and support commerce abroad, through adding to the wealth and productive capacity of those countries, they create their own security and increase consuming power to the probable advantage of our trade. But when used in ways that are not productive, like the maintenance of great military establishments, or to meet municipal expenditures which should either be eliminated by government economy or supplied by taxation, they do not serve any useful purpose and should be discouraged."

they are payable at some financial institution in the currency of the lending country. In some cases, however, external loans are issued in the currency of the borrowing country, as was true of the Republic of France national defense 4 per cent loan of 1918. Interest on these bonds was payable quarterly at Paris and at London. Payments in London were made at the rate of exchange ten days before the interest date. Unless external and internal loans are specifically secured by the pledge of collateral, there is no legal reason why they both should not have the same status. Matters of expediency, however, may cause a nation to pay its external loans in times of crisis before it meets payments on its internal loans, especially if the latter is large as compared with the former. On the other hand, internal loans may be paid in depreciated paper currency or through loans forced upon the country's banks; whereas, in the case of external loans, exchange difficulties may be so great as to cause defaults thereon. The experience of a number of South American countries illustrates this situation.

Date of maturity. In this country we are accustomed to deal in bonds that have a definite maturity date, although in some instances the term of the bond is so long that, to all intents and purposes, it is perpetual. Foreign nations selling bonds in the United States conform to our usage. European nations, on the other hand, have outstanding internal obligations that are perpetual. Thus the various issues of Republic of France rentes carry a written agreement to pay a specific yearly income and, although redeemable, have no maturity date. The British consols are similar. Thus, the 2½ per cent consols of the United Kingdom, issued in 1888, were issued as not redeemable until on or after April 5, 1923, after which date they might be redeemed by an act of Parliament.

Security and guaranties. Consideration has already been given to certain cases where foreign government loans have been secured by the pledge of specific assets, or by a lien against customs duties or government revenues of one kind or another.²¹ In other instances, additional security is given to foreign loans by some sort of guaranty by a government other than the issuing power. Such a guaranty may be moral or absolute. Thus, the

²¹ For a discussion of secured and guaranteed loans, see Madden, John T., and Nadler, M., *Foreign Securities* (New York: Ronald Press Co., 1929), Chapter IX.

United States, it is generally believed, would hold itself responsible for the payment of obligations of the Philippine Islands, of Puerto Rico, or of the Hawaiian Islands, although it is not legally liable. On the other hand, the guaranty may be absolute. The Republic of Austria guaranteed 7 per cent gold bonds of 1923, issued under the auspices of the League of Nations, were guaranteed as to principal and interest, as well as to redemption payments, by the states that are listed below, in the proportions indicated:

	<i>Per Cent</i>
Great Britain.....	24½
France.....	24½
Czechoslovakia.....	24½
Italy.....	20½
Belgium.....	2
Sweden.....	2
Denmark.....	1
Netherlands.....	1

In 1935, these bonds were called, to be replaced with a conversion loan, due 1959, bearing lower interest rates. The "tranches" in the several countries were to bear different rates. (Tranche is a term applied to the portion of the loan sold in a particular country.) The Spanish tranche of the conversion loan was an exception to the rule of joint guaranty, it being guaranteed solely by the Spanish Government.

Sinking funds and redemption. Prior to the World War I, the credit of the stronger nations was such that sinking fund provisions were not generally required, but since then external loans issued in this country have almost invariably contained such provisions. The theory underlying the use of sinking funds is much the same for foreign government obligations as for domestic loans. Through the use of that device it is planned to retire all or a part of an issue of bonds before maturity.

General sinking fund provisions that call for the issuing government to pay a certain sum annually into a sinking fund to be operated by itself are not always effective. A better plan, and the one now commonly used, provides for the payment of definite annual sums to specified trustees for the purpose of meeting interest on the loan as well as for the annual retirement of a certain amount of the bonds.

A modified type of sinking fund requires that payments be made into the fund for use only when the bonds of a country

fall below a certain price. In this way, it is expected to stabilize the market price of the bonds. Thus, with respect to the India 5 per cent War Loan of 1917, a provision required that a sum equal to 1½ per cent of the loan should be set aside annually for sinking fund purchases when the market price of the bonds fell below 95.

The provisions applying to the redemption of foreign bonds are usually similar to those for domestic bonds. Purchases made on account of sinking funds may be selected by drawings, if sufficient bonds are unavailable in the open market at the specified prices. It often happens with foreign issues that callable features similar to those found in domestic loans are present.

Lottery loans. A rather unique type of loan issued by some European nations is known as the lottery loan. Such bonds are issued on the basis of the psychological appeal of chance. Thus France, in its 5 per cent Lottery Loan of 1919 (first issue) provided for four drawings each year, at which one bond was drawn for redemption at 1,000,000 francs; one at 500,000 francs; five at 100,000 francs; and ten at 50,000 francs each; in all, 68 bonds annually. The French Government guaranteed premiums, interest, and the amounts drawn.

Summary. The field of foreign investment rapidly assumed an important role in American finance during the decade immediately succeeding World War I. In spite of factors favoring the United States, Great Britain is believed to have retained her leadership by a significant margin. A 1929 estimate placed the total private long-term investments for the former at \$13,500,000,000; and for the latter, at nearly \$20,000,000,000.²² The American experience in foreign investment has been disappointing, in spite of the high proportion of government and municipal obligations. Defaults have been almost universal among the Latin-American countries, with Argentina as an outstanding exception, despite her very trying position. Losses and delays have been overfrequent in other directions. A general idea of the geographical distribution of defaults may be obtained from the following table:²³

²² *Index*, New York Trust Co., April, 1931, p. 80.

²³ *Moody's Manual of Investments: Governments and Municipals* (New York: Moody's Investors Service, 1941), p. a23. Original table shows status of individual countries. In reading this table, it should be remembered that substantial amounts of these bonds are no longer owned in the United States.

STATUS OF ALL PUBLICLY OFFERED FOREIGN
DOLLAR BONDS: DECEMBER 31, 1939

(Millions of Dollars)

	<i>Total Outstanding</i>	<i>Defaulted As to Interest</i>
Latin America. . . .	1,714	73.6%
Europe	1,641	57.8
Far East.	569 *	1.0
North America. . . .	2,168	4.9
Total	6,092	38.1

In many instances the defaults have been attributed to the depression emergency after 1930. A considerable number of foreign loans, however, were contracted under conditions that made default almost inevitable.²⁴ Bribery was employed in certain instances to close contracts. Borrowing was made so easy as to encourage wasteful expenditures. In one case it was revealed that a weak country receiving a loan for railroad construction had spent the proceeds on armaments. Yet the investment bankers who had arranged the first loan arranged another loan to the same country shortly afterwards.²⁵

In addition to initial weakness in a number of debt situations, the exigencies of hard times were seized upon in some cases as an excuse for default. In at least one instance a default was produced by drastic governmental restrictions upon exchange. Funds that might have been used for bond interest were then used to acquire some of the greatly depreciated bonds.

Of the various forms of default, that with respect to sinking fund is borne by the bondholder with the greatest equanimity. Income is unaffected, and the chief result is usually a depressed market price that is chiefly disadvantageous to the holder who is in need of recovering principal. Default upon interest payments is the most serious form of default for the bondholder and for the credit standing of the debtor. The latter factor explains why certain countries have attempted to provide a partial solution to their difficulties. Bondholders have been offered for matured coupons such various compromises as: (1) part payment

²⁴ For an unusually illuminating account of our unfortunate foreign investments, see Winkler, Max, *Foreign Bonds: An Autopsy* (Philadelphia: Roland Swain Co., 1933).

²⁵ Salter, Sir James Arthur, *Recovery, the Second Effort* (New York: D. Appleton-Century Co., 1932), pp. 120-122.

in cash and part in scrip; (2) all scrip; (3) part cash to be accepted as full payment; and (4) payment in a foreign currency worth various amounts in relation to the coupon claims.²⁶

Whenever a defaulted debt undergoes formal readjustment, the interest rate is usually lowered but the principal amount is customarily unchanged. Thus, in its debt readjustment program of 1937 the Republic of Uruguay after a period of reduced interest payments which began in 1933 offered the holders of 8's of 1946 a new issue of 4-4¼-4½ per cent sinking fund bonds of 1978, the coupons to increase with the passage of time. Holders of the old bonds who refused the conversion offer have received no payments. Sometimes differences in coupon rates are recognized in the readjustment plan, as in this case where a 6 per cent issue received bonds each with 3¾-4-4½ per cent coupons and a 5 per cent issue, a straight 3½ per cent coupon. Sometimes differences in security are recognized by differences in treatment after a default. Thus, the State of Sao Paulo 7's of 1940, secured by a pledge of coffee, received more interest than other issues without such pledge.

As long as the financial position of the debtor remains dubious, no formal adjustment may take place, and each year the bondholder may be offered partial payments in exchange for his coupons. The investor is somewhat at the mercy of the debtor since

²⁶ Ordinarily, a defaulted bond is good delivery on a stock exchange only where all unpaid coupons are attached. Coupons for which some compromise payment has been effected may be detached. A special transaction may be executed on the New York Stock Exchange, however, in this latter situation to include the defaulted coupons. The following example is illustrative:

"Those persons holding Hungarian bonds with past due coupons attached have actually found it advantageous in disposing of their bonds to sell them under the 'special transaction' ruling with coupons attached. The difference in value between bonds with coupons detached and the value of bonds plus detached coupons may be as great as 25 per cent of the total value of coupons. This situation occurs as a result of the Hungarian currency regulations, which provide that coupons attached to bonds can be exchanged for pengos in inland exchange, whereas detached coupons can be used only in obtaining blocked pengos, a less desirable form of currency. Hungary 7½'s, due 1944, is an exception to this rule, since payment on its coupons are currently made in dollars on a reduced basis. On the other hand holders of certain Austrian bonds who have not detached coupons defaulting in 1932 will find it to their advantage to detach the 1932 coupons and sell them separately—some of the coupons are selling at a price as high as 125 per cent of their face value." (*The Chicago Tribune*, Feb. 10, 1935.)

For recent issues of foreign government interest-funding bonds and scrip, see *Moody's Manual of Investments: Governments and Municipals* (New York: Moody's Investors Service, 1941), p. a29.

he must either accept the incomplete payment or forego income altogether in the hope that he may obtain better treatment at some uncertain date. Usually the majority accept the present payment. Sometimes a definite source of revenue is set aside for debt service. Thus, the Republic of Chile sets aside the profits of the Chilean Nitrate and Iodine Sales Corporations and certain taxes on copper mining (all largely export products) for the service of its direct and guaranteed external obligations. One half of the fund is devoted to paying the same rate of interest to all bondholders who will accept this payment in full satisfaction of the specified coupons. The remaining half of the fund is devoted to sinking fund.

Some protection has been afforded bondholders by the formation, in 1933 at the request of United States Government authorities, of the Foreign Bondholders' Protective Council, Inc. The Council assists in safeguarding the interests of American holders of foreign public dollar bonds issued or guaranteed by foreign governments or their subdivisions. No deposits of bonds are accepted nor does the council act as a legal agent. It merely seeks a record of holders so that they may be informed of council action. It has sought to bring about resumption of debt service on defaulted issues and equitable plans of debt readjustment.

The great losses suffered by investors are likely to make the American public wary of further ventures in this field. Those countries that have been able to maintain payments and might be welcome borrowers are likely to retire their debts and seek internal loans because of the hardships they have suffered from fluctuating exchange rates. An important exception would seem to be likely in the case of Canada, because of her proximity, which makes trade and financial relations a logical development. Indirect investment through subsidiaries of American corporations may also continue as a natural result of the desire to extend operations where profitable opportunities appear.

Part IV

The Mathematics and Mechanics of Investments, Taxation, and the Business Cycle

Mathematics of Investment

Yields of securities contrasted with price. Almost the first technical term one encounters when considering investments is that of "yield" or "basis." Some bonds, such as serial municipals and equipment trust certificates, are characteristically quoted to yield a certain rate of return, such as 3.25 or 4.70 per cent, instead of being quoted upon a price basis. In fact, the mere price at which a given bond is quoted in itself means little. A bond selling at 104.7 with a $5\frac{1}{2}$ per cent coupon rate of interest and with ten years to run to maturity is really cheaper, in terms of income, than a $5\frac{1}{2}$ per cent coupon bond selling at 103.22, with but six years to run. The first bond, although selling at a greater premium, nevertheless yields to the purchaser a return of 4.9 per cent, while the latter yields only 4.875 per cent.

The investor, therefore, is far more interested in the return that he receives on his investment than in the matter of price. The price at which a bond is quoted is only one of three factors that determine the effective yield on the investment. The other two factors are the length of time the bond has to run to maturity and the coupon rate of interest.¹

Computation of yields and values from bond tables. In practice, the yield of a bond may be determined by the use of bond tables provided that the following information is known: (1) the price at which the bond is selling; (2) the coupon or stated rate of interest; and (3) the length of time the bond has to run to

¹ A fourth factor, usually ignored, might be the length of period between income dates. Interest payments on some bonds are made annually, on others quarterly; but in most cases interest is payable semiannually.

maturity. Or, it is possible to determine from a bond table the price at which a bond will have to sell to give a desired yield, if one knows, in addition to the yield sought, the coupon rate of interest and the length of time to maturity. In fact, given any three of these factors, the fourth factor may be derived from the ordinary bond table.

Formula for determining table of bond values and yields. While, later on, we shall take up in detail the use of bond tables, it may be helpful for the student if we first consider the algebraic processes by which the bond table itself is constructed. The value of a bond consists of two sums: (1) the present value of the redemption price (usually par); and (2) the present value of an annuity consisting of the interest payments on the par value of the bond.

Compound interest and discount. In finding the present worth of any given sum, one must first consider the formula for computing compound interest. This formula is derived as follows:

$$\begin{aligned} n &= \text{number of interest periods} \\ N &= \text{rate per period} \end{aligned}$$

Then the valuation of \$1 at compound interest for n periods at N rate is $(1 + N)^n$.

Thus, let us assume that \$1 is invested at compound interest, computed semiannually, for ten years at 6 per cent. Substituting in our formula, we have:

$$(1 + N)^n = (1 + .03)^{20} = (1.03)^{20}$$

The computations in this case are facilitated by the use of logarithms.

$$\begin{aligned} \log \text{ of } 1.03 &= 0.012837 \\ \log (1.03)^{20} &= .25674 \\ &= \log \text{ of } 1.8061 \\ \$1.80 &= \text{the desired amount} \end{aligned}$$

The present worth of a sum discounted at a given rate of interest is the reciprocal of the sum at compound interest; that is, compound discount is the reciprocal of compound interest. The present worth of \$1 at compound discount for n periods at N rate thus becomes:

$$\frac{1}{(1 + N)^n}$$

If \$1 accumulated at 6 per cent semiannual compound interest for ten years amounts to \$1.80, then the present value of \$1 payable ten years hence can be found by dividing one by 1.80, and the result is \$.55.

Valuations of annuities. If one has a knowledge of how to find the present value of an amount payable in the future, it becomes possible to work out a formula for determining the present worth of a whole series of coupons, or interest payments, attached to a bond. Such a series of payments is known as an "annuity certain"; that is, it is a series of equal amounts paid at regular intervals, and the time of payment does not depend upon an uncertain contingency. To the present value of the coupons must be added the present worth of the principal sum, for, as previously indicated, the purchase price of the bond is the agreed present worth of each and all coupon payments at their respective due dates, in addition to present value of the principal, all at compound discount at the effective yield.

The formula for determining the present worth of an annuity of \$1 for any given number of payments is as follows:

- Let a = the unknown quantity, the present worth of such a series
 i = the interest or net yield rate for each period (.03 in the case of a bond with a net yield of 6 per cent payable semiannually)
 n = the number of periods (twenty in number in the case of a ten-year bond with semiannual interest payments)
 c = the amount of one coupon

$$\text{The present worth of the 1st payment} = \frac{c}{(1+i)}$$

$$\text{The present worth of the 2d payment} = \frac{c}{(1+i)^2}$$

$$\text{The present worth of the 3d payment} = \frac{c}{(1+i)^3}$$

and so on for any number of coupon payments.

Since we are seeking to derive a general formula for any number (n) of payments, it is possible to state the series in the following form:

$$a = \frac{c}{(1+i)} + \frac{c}{(1+i)^2} + \frac{c}{(1+i)^3} \cdots \frac{c}{(1+i)^{n-2}} + \frac{c}{(1+i)^{n-1}} + \frac{c}{(1+i)^n}$$

or, reduced to simple terms,

$$a = \frac{c}{i} - \frac{c}{i(1+i)^n}$$

Probably the simplest method of performing this reduction is to treat the coupons as a perpetual annuity $\left(\frac{c}{i}\right)$ and to subtract the value of the coupons after maturity. The coupons after maturity, which are eliminated, would be a perpetual annuity beginning after n periods $\left(\frac{c}{i} \div (1+i)^n\right)$.

This process gives:

$$\text{Present value of coupons} = \frac{c}{i} - \frac{c}{i(1+i)^n}$$

The present worth of the principal of the bond is found simply by dividing it by $(1+i)^n$ —that is:

$$\text{Present value of Principal} = \frac{\text{Principal}}{(1+i)^n}$$

The last step in the formula for bond value is to add the present value of principal and coupons together and to simplify the result. Since the price of a bond is usually expressed as a percentage of parity, the value of one (100%) will be substituted for Principal in the second formula, and c , the coupon rate, will be understood to be a percentage in the first formula. Thus, for a 5 per cent bond, $c = .05$.

Adding the two formulas together:

$$\begin{aligned} \text{Bond value} &= \frac{1}{(1+i)^n} + \frac{c}{i} - \frac{c}{i(1+i)^n} \\ &= \frac{i}{i(1+i)^n} + \frac{c(1+i)^n}{i(1+i)^n} - \frac{c}{i(1+i)^n} \\ &= \frac{i + c(1+i)^n - c}{i(1+i)^n} \end{aligned}$$

In the application of this formula, semiannual compounding of interest is assumed, and therefore c equals one half of the annual coupon rate; i , one half of the net yield basis; and n , twice the number of years to maturity.

Solution of exponential equation by trial and error. In the use of this formula, the problem is ordinarily to determine i , the yield basis; the other factors are given. "Bond value" is the purchase, or market, price; c is the coupon rate; and n is the number of periods the bond has to run. It would at first seem that this equation, with only one unknown quantity, could be solved directly. The unknown quantity, however, is exponential.

It appears in the equation with many powers. Thus in a 20-year bond, the term $(1+i)$ would have to be expanded to the 40th power, which would give the unknown i with every power from the first to the 41st power, and in both the numerator and denominator of the fraction. The only method of solution, therefore, is by trial and error.

In order to show how this formula may be used in this way, let us assume that a 6 per cent 30-year bond is purchased at 105, and that the net yield is required. Substituting in the formula,

$$1.05 = \frac{i + .03(1+i)^{60} - .03}{i(1+i)^{60}}$$

$$1.05i(1+i)^{60} = .03(1+i)^{60} + i - .03$$

The bond having been purchased at a premium, it is evident that the net yield is less than .03 semiannually. Solving by approximation, let us try .029.

$$\begin{aligned} 1.05 \times .029(1 + .029)^{60} &= .03(1 + .029)^{60} + .029 - .03 \\ 1.05 \times .029(1.029)^{60} &= .03(1.029)^{60} - .001 \end{aligned}$$

The use of logarithms from this point on will facilitate the solution.

<i>Left Side of Equation</i>		<i>Right Side of Equation</i>		
log 1.05	= 0.02119	log .03	= 8.47712 - 10	
log .029	= 8.46240 - 10	log (1.029) ⁶⁰	= 0.74520	} - .001
log (1.029) ⁶⁰	= 0.74520			
<hr/>		<hr/>		
log of product	= 9.22879 - 10	log of product	= 9.22232 - 10	
Product	= .1693	Product	= .1678	
			- .001	
<hr/>		<hr/>		
Total	= .1693	Total	= .1668	

.028 may next be tried:

$$(.028 - .03 = -.002)$$

log 1.05	= 0.02119	log .03	= 8.47712 - 10	} - .002
log .028	= 8.44716 - 10	log (1.028) ⁶⁰	= 0.71940	
log (1.028) ⁶⁰	= 0.71940			
<hr/>		<hr/>		
log of product	= 9.18775 - 10	log of product	= 9.19652 - 10	
Product	= .1541	Product	= .1572	
			- .002	
<hr/>		<hr/>		
Total	= .1541	Total	= .1552	

Neither the use of .028 nor of .029 for i makes the equation bal-

ance exactly, but the foregoing trial shows that a value somewhere between these two figures would bring about the desired equality. A value of .028 or .029 on a semiannual basis would equal 5.6 or 5.8 on an annual basis. To carry the decimal point further for greater accuracy, we might continue by the same method, starting with an assumed yield of .0281, .0282, and so on. It would be found that .0282 would come very close to satisfying the equation, thus giving an approximate yield in this assumed case of 5.64 per cent.

Use of bond tables commonly employed. Although we have indicated the mathematical formula by which the yield of a given bond may be determined, one would scarcely attempt to compute the yield of a given issue in this way. In practice, the investor depends almost entirely on tables of bond values for computations of this nature. In these tables prices are worked out for an extended range of maturities, yields, and coupon rates. The results are customarily presented in the form of a table for each maturity. By the use of such tables, it is very easy to determine with reasonable accuracy the net yield of a bond, when the price, the maturity date, and the redemption value are known. Similarly, it is possible to determine the price at which a bond of known redemption value and maturity must be purchased in order to give a specified return.

A number of bond tables are in common use at the present time. We shall illustrate briefly the Johnson,³ the Sprague,⁴ and the Equitable tables.⁵ The Johnson tables show yields at various prices to the third decimal. (Prices corresponding to yields most commonly found vary by 25-cent intervals per \$100 unit.) Tables are presented for bonds with coupon rates of $3\frac{1}{2}$, 4, $4\frac{1}{4}$, $4\frac{1}{2}$, 5, $5\frac{1}{2}$, 6, $6\frac{1}{2}$, 7, $7\frac{1}{2}$, and 8 per cent. Unlike other tables in common use, the Johnson tables give yields directly for various common prices, coupon rates, and maturities. In addition, the Johnson tables include data that provide a quick and ready means of determining the yield of any bond

³ Johnson, David C., Stone, Caleb, Cross, Milton C., and Kircher, Edward A., *Yields of Bonds and Stocks* (New York: Prentice-Hall, Inc., 1928). The yields are presented in the form of percentages, correct to the nearest five ten-thousandths of one per cent, and there is a table for the ready determination of yields of bonds to be repaid at a premium.

⁴ Sprague, Charles E., *Extended Bond Tables* (New York: The Ronald Press, 1915).

⁵ Bartholomew, James P., *Equitable Trust Company of New York Rapid Bond Tables*. Published by permission of Equitable Trust Company of New York.

that has a "repayment value" (or redemption price) greater than its face value. The Sprague table shows the value to the nearest cent of a bond for \$1,000,000, bearing interest from 3 to 7 per cent, and yielding from $1\frac{1}{4}$ to 10 per cent. The Sprague table is divided into three parts: one part dealing with usual rates, from $2\frac{1}{2}$ to 5 per cent; another dealing with lower rates, $1\frac{1}{4}$ to $2\frac{1}{2}$ per cent; and a third, dealing with the higher rates, 5 to 10 per cent. By the use of certain tables, it is possible to work out values for bonds whose interest is payable quarterly or annually.

The Equitable table is designed to facilitate interpolation for time. Differences for months and days are contained under each value (see page 744).

Computation of yield for an even period. A specimen page from the Johnson table is shown on page 738. Let us assume that we have a 5 per cent coupon bond, maturing in 20 years, which is quoted at 103. To find the yield by the Johnson tables, one has but to turn to the page headed 5 per cent bond, and run down the 20-year column to the yield corresponding to the price 103. The corresponding yield is 4.766— per cent. In practice, however, the proposition is frequently complicated by the fact that the actual price at which the bonds are selling is not given in the bond tables, for it would be a prodigious task to work out tables for every conceivable price. Thus, in the table given, prices vary by intervals of a half point from 90 to 110; thereafter by intervals of one point. Had the price of our bond been 102.80 instead of 103, we could have determined by inspection that the yield of the bond was between 4.766— and 4.804, but we could have arrived at the correct yield only by interpolation. Thus, for a 20-year, 5 per cent bond, selling at 102.80, the computations would be as follows:

	103.00	4.766
	102.50	4.804
	<hr/>	<hr/>
Differences	.50	.038

That is, a difference of .50 in price makes a difference of .038 in yield. By interpolation, the correct yield for a bond selling at 102.80 is:

$$4.804 - 30/50 \times .038 = 4.7812 \text{ per cent}$$

Note that the price, 102.80, is 30/50 (.6) of the entire distance, so to speak, from 102.50 to 103.00. This entire range in price

JOHNSON TABLE

Yields in per cent per annum,
correct to the nearest five ten-thousandths of one per cent,
interest payable semi-annually.

5%

BOND

Price	18 Years	18½ Years	18 Years	18½ Years	20 Years	20½ Years	21 Years	Current Income
90	5.910-	5.895	5.881-	5.868-	5.855	5.843	5.832-	5.556-
90½	5.861	5.847	5.834-	5.821	5.809	5.798	5.787	5.523-
91	5.813	5.800-	5.787	5.775	5.764	5.753	5.743	5.495-
91½	5.765	5.753-	5.741-	5.729	5.719	5.709-	5.699	5.444
92	5.717	5.706-	5.695-	5.684	5.674	5.665-	5.656-	5.435-
92½	5.670	5.659	5.649-	5.639-	5.630-	5.621-	5.612	5.405
93	5.623	5.613	5.603	5.594	5.586	5.577	5.570	5.376
93½	5.577-	5.567	5.558	5.550-	5.542-	5.534	5.527-	5.348-
94	5.531-	5.522-	5.514-	5.506-	5.498	5.491	5.485-	5.319
94½	5.485-	5.477-	5.469	5.462-	5.455	5.449-	5.443-	5.291
95	5.439	5.432-	5.425-	5.418	5.412	5.407-	5.401-	5.263
95½	5.394-	5.387	5.381	5.375	5.370-	5.365-	5.360-	5.236-
96	5.349-	5.343	5.338-	5.332	5.328-	5.323-	5.319-	5.208
96½	5.304	5.299	5.294	5.290-	5.286-	5.282-	5.278-	5.181
97	5.260-	5.256-	5.251	5.248-	5.244-	5.240	5.237	5.156-
97½	5.216-	5.212	5.209-	5.206-	5.203-	5.200-	5.197-	5.128
98	5.172	5.169	5.167-	5.164	5.162-	5.159	5.157	5.102
98½	5.129-	5.126	5.124	5.123-	5.121-	5.119	5.117	5.076
99	5.085	5.084	5.083-	5.081	5.080	5.079	5.078-	5.051-
99½	5.043-	5.042-	5.041	5.041-	5.040-	5.039	5.039-	5.025
100	5.000	5.000	5.000	5.000	5.000	5.000	5.000	5.000
100½	4.958-	4.958	4.959	4.960-	4.960	4.961-	4.961	4.975
101	4.916-	4.917	4.918	4.920-	4.921-	4.922-	4.923	4.950
101½	4.874-	4.876	4.878	4.880-	4.882-	4.883	4.885-	4.928
102	4.832	4.835	4.838-	4.840	4.843-	4.845	4.847	4.902-
102½	4.791	4.795-	4.798-	4.801	4.804	4.807-	4.810-	4.878
103	4.750	4.754	4.758	4.762	4.766	4.770	4.772	4.854
103½	4.709	4.714	4.719	4.723	4.728-	4.731	4.735	4.831-
104	4.668	4.675-	4.680	4.685	4.690	4.694	4.698	4.808-
104½	4.629-	4.635	4.641	4.647-	4.652-	4.657-	4.662-	4.785-
105	4.589-	4.596-	4.602	4.609-	4.614	4.620	4.625	4.762-
105½	4.549	4.557-	4.564	4.571-	4.577	4.583	4.589	4.739
106	4.510-	4.518	4.526-	4.533	4.540	4.547	4.553	4.717-
106½	4.471-	4.479	4.488-	4.496	4.504	4.511-	4.518	4.695-
107	4.432-	4.441	4.450	4.459-	4.467	4.475-	4.482	4.673-
107½	4.393-	4.403	4.413-	4.422	4.431-	4.439	4.447-	4.651
108	4.354	4.365	4.376-	4.385	4.395-	4.403	4.412-	4.630-
108½	4.316	4.328-	4.339-	4.349	4.359	4.368	4.377-	4.608
109	4.278-	4.290	4.302-	4.313	4.323	4.333	4.342	4.587
109½	4.240	4.253	4.265	4.277-	4.288-	4.298	4.308	4.566
110	4.203-	4.216	4.229-	4.241	4.253-	4.263	4.274-	4.545
111	4.128	4.143-	4.157-	4.170	4.183	4.195-	4.206	4.505-
112	4.054	4.070	4.086-	4.100	4.114	4.127-	4.139	4.464
113	3.981	3.999-	4.015	4.031-	4.046	4.060	4.073	4.425
114	3.909	3.928	3.946-	3.963	3.978	3.993	4.008	4.389-
115	3.838	3.858	3.877	3.895-	3.912	3.928-	3.943	4.348-
116	3.768	3.789	3.809	3.828	3.846	3.863	3.879	4.310
117	3.698	3.721-	3.742-	3.762-	3.781-	3.799-	3.816	4.274
118	3.629	3.653-	3.675	3.696	3.716	3.735	3.753	4.237
119	3.561	3.586	3.610-	3.632-	3.653	3.673	3.692	4.202-
120	3.494-	3.520-	3.544	3.568-	3.590-	3.611-	3.631-	4.167-
121	3.427	3.454	3.480	3.504	3.528-	3.549	3.570	4.132
122	3.361	3.390-	3.416	3.442-	3.466-	3.489-	3.510	4.098
123	3.296-	3.325	3.353	3.380-	3.405-	3.429-	3.451	4.065
124	3.231	3.262-	3.291-	3.319-	3.345-	3.369	3.393-	4.032
125	3.167	3.199	3.229	3.258-	3.285-	3.311-	3.335-	4.000
126	3.104-	3.137-	3.168	3.198-	3.226-	3.252	3.276-	3.968
127	3.041	3.075	3.108	3.138	3.167	3.195-	3.221-	3.937
128	2.979	3.014	3.048	3.079	3.109	3.138-	3.165-	3.906
129	2.918-	2.954	2.988	3.021	3.052	3.081	3.109	3.875-
130	2.857-	2.894	2.930-	2.963	2.995	3.025	3.054	3.846

represents a difference in yield of .038 per cent; 30/50 of the range, therefore, results in a difference of —.0228 per cent.

This method of interpolation, even where computed with accuracy, is not entirely correct, for the intervals in price do not vary proportionately with intervals in yield. The following section of the Sprague tables will illustrate this point. These tables are used here because they are carried out further and indicate more clearly the above situation.

SECTION FROM SPRAGUE TABLES

(Values to Nearest Cent, of a Bond for \$1,000,000 at 5 Per Cent Interest,
Payable Semiannually)

Net Yield	20 Years	DERIVED BY AUTHOR	
		* Difference in Net Yield	Difference in Price
4.00.....	\$1,136,777.40	..	.....
4.05.....	1,129,370.64	.05	\$7,406.76
4.10... ..	1,122,027.08	.05	7,343.66
4.15.....	1,114,746.14	.05	7,280.94
4.20... ..	1,107,527.22	.05	7,218.92
4.25.....	1,100,369.73	.05	7,157.49
4.30... ..	1,093,273.10	.05	7,096.63

In interpolating, by proportion, the assumption is that both intervals are constant. The error is so small, however, that for all practical purposes it is not considered. It is possible to correct this error by the method of differences.⁵

Interpolation for time. Another complication is almost always injected into the problem by the fact that the length of time the bond has to run to maturity rarely falls on an even six-months period. Bond tables are worked out for six-months intervals, and not for days. Thus, while one finds tables for bonds maturing in 6 months, 1 year, 1½ years, 2 years, and so on, most bonds mature at intervening periods. These intervals make necessary an even further interpolation. Assume that a 5 per cent bond, maturing on November 1, 1942, is quoted on August 16, 1927, at 102.75. The problem is to find the yield. It is apparent that this bond does not mature in 15 years, but in 15 years, 2 months, and 15 days.⁶ In this case it is necessary to determine the yield of the bond both for a 15-year maturity and a 15½-year maturity. The next step requires interpolation between these two yields to determine the yield of a bond

⁵ See Sprague, Charles E., *Extended Bond Tables* (New York: The Ronald Press, 4th ed., 1915), p. 121.

⁶ In computing the length of time bonds have to run, one customarily assumes 30 days to the month, except in the case of very large transactions.

MATHEMATICS OF INVESTMENT

SPRAGUE TABLES

(Values, to the Nearest Cent, of a Bond for \$1,000,000 at 5% Interest,
Payable Semiannually)

<i>Net Income</i>	<i>13 Years</i>	<i>13½ Years</i>	<i>14 Years</i>	<i>14½ Years</i>	<i>15 Years</i>
2 50	1 276 015 66	1 284 953 74	1 293 781 47	1 302 500 22	1 311 111 33
2 55	1 269 642 20	1 278 343 32	1 286 934 90	1 295 418 32	1 303 794 94
2 60	1 263 307 30	1 271 774 24	1 280 132 51	1 288 383 53	1 296 528 66
2 65	1 257 010 71	1 265 246 20	1 273 373 99	1 281 395 50	1 289 312 12
2 70	1 250 752 18	1 258 758 93	1 266 650 03	1 274 453 91	1 282 144 95
2 75	1 244 531 45	1 253 312 16	1 259 987 33	1 267 558 40	1 275 026 79
2 80	1 238 348 28	1 248 905 60	1 253 358 58	1 260 708 66	1 267 987 26
2 85	1 232 202 43	1 239 539 00	1 246 772 49	1 253 904 35	1 260 936 02
2 90	1 226 093 65	1 233 212 07	1 240 228 75	1 247 145 15	1 253 962 69
2 95	1 220 021 69	1 226 924 55	1 233 727 08	1 240 430 72	1 247 036 93
3 00	1 213 986 32	1 220 676 17*	1 227 267 17	1 233 760 76	1 240 158 38
3 05	1 207 987 29	1 214 466 68	1 220 848 73	1 227 134 92	1 233 326 69
3 10	1 202 024 38	1 208 295 79	1 214 471 48	1 220 552 91	1 226 541 52
3 15	1 196 097 33	1 202 163 26	1 208 135 13	1 214 014 41	1 219 802 52
3 20	1 190 205 93	1 196 068 83	1 201 839 40	1 207 519 09	1 213 109 34
3 25	1 184 349 93	1 190 012 23	1 195 583 99	1 201 066 66	1 206 461 66
3 30	1 178 529 11	1 183 993 22	1 189 368 64	1 194 656 80	1 199 859 12
3 35	1 172 743 23	1 178 011 53	1 183 193 05	1 188 289 21	1 193 301 41
3 40	1 166 992 06	1 172 066 93	1 177 056 96	1 181 963 58	1 186 788 18
3 45	1 161 275 39	1 166 159 15	1 170 960 09	1 175 679 61	1 180 319 11
3 50	1 155 592 99	1 160 287 95	1 164 902 16	1 169 437 01	1 173 893 87
3 55	1 149 944 62	1 154 453 08	1 158 882 91	1 163 235 48	1 167 512 14
3 60	1 144 330 08	1 148 654 30	1 152 902 07	1 157 074 72	1 161 173 60
3 65	1 138 749 14	1 142 891 37	1 146 959 36	1 150 954 45	1 154 877 92
3 70	1 133 201 58	1 137 164 05	1 141 054 54	1 144 874 36	1 148 624 80
3 75	1 127 687 18	1 131 472 08	1 135 187 32	1 138 834 18	1 142 413 92
3 80	1 122 205 74	1 125 815 25	1 129 357 46	1 132 833 62	1 136 244 96
3 85	1 116 757 03	1 120 193 31	1 123 564 69	1 126 872 39	1 130 117 63
3 90	1 111 340 84	1 114 606 02	1 117 808 75	1 120 950 22	1 124 031 60
3 95	1 105 956 96	1 109 053 16	1 112 089 39	1 115 066 82	1 117 986 59
4 00	1 100 605 18	1 103 534 49	1 106 406 36	1 109 221 92	1 111 982 28
4 05	1 095 285 29	1 098 049 78	1 100 759 41	1 103 415 25	1 106 018 38
4 10	1 089 997 09	1 092 598 82	1 095 148 28	1 097 646 52	1 100 094 58
4 15	1 084 740 37	1 087 181 36	1 089 572 72	1 091 915 48	1 094 210 61
4 20	1 079 514 92	1 081 797 18	1 084 032 50	1 086 221 84	1 088 366 15
4 25	1 074 320 55	1 076 446 07	1 078 527 37	1 080 565 35	1 082 560 93
4 30	1 069 157 05	1 071 127 80	1 073 057 08	1 074 945 74	1 076 794 66
4 35	1 064 024 22	1 065 842 15	1 067 621 39	1 069 362 75	1 071 067 04
4 40	1 058 921 86	1 060 588 91	1 062 220 07	1 063 816 11	1 065 377 80
4 45	1 053 849 78	1 055 367 85	1 056 852 87	1 058 305 57	1 059 726 65
4 50	1 048 807 78	1 050 178 76	1 051 519 57	1 052 830 57	1 054 113 32
4 55	1 043 795 67	1 045 021 43	1 046 219 92	1 047 391 76	1 048 537 53
4 60	1 038 813 24	1 039 895 63	1 040 953 71	1 041 987 98	1 042 999 01
4 65	1 033 860 32	1 034 801 19	1 035 720 63	1 036 619 28	1 037 497 47
4 70	1 028 936 70	1 029 737 86	1 030 520 63	1 031 285 42	1 032 032 65
4 75	1 024 042 21	1 024 705 45	1 025 353 31	1 025 986 14	1 026 604 29
4 80	1 019 176 64	1 019 793 75	1 020 218 51	1 020 721 20	1 021 212 11
4 85	1 014 339 83	1 014 732 56	1 015 116 00	1 015 490 36	1 015 855 85
4 90	1 009 533 87	1 009 791 67	1 010 045 56	1 010 293 37	1 010 538 26
4 95	1 004 751 69	1 004 880 89	1 005 006 96	1 005 130 00	1 005 250 06
5 00	1 000 000 00	1 000 000 00	1 000 000 00	1 000 000 00	1 000 000 00

SPRAGUE TABLES

(Values, to the Nearest Cent, of a Bond for \$1,000,000 at 5% Interest,
Payable Semiannually)

Net Income	15½ Years	16 Years	16½ Years	17 Years	17½ Years
2 50	1 319 616 13	1 328 015 93	1 336 312 93	1 344 505 71	1 352 598 23
2 55	1 312 066 09	1 320 233 12	1 328 297 33	1 336 260 01	1 344 122 45
2 60	1 304 569 26	1 312 506 67	1 320 342 22	1 328 077 22	1 335 712 95
2 65	1 297 125 21	1 304 836 13	1 312 446 22	1 319 956 79	1 327 369 15
2 70	1 289 733 55	1 297 221 06	1 304 608 84	1 311 898 22	1 319 090 50
2 75	1 282 393 87	1 289 661 03	1 296 829 62	1 303 900 99	1 310 876 43
2 80	1 275 105 78	1 282 155 60	1 289 108 09	1 295 964 58	1 302 726 41
2 85	1 267 868 88	1 274 704 35	1 281 443 77	1 288 088 51	1 294 639 89
2 90	1 260 682 79	1 267 306 84	1 273 836 22	1 280 272 27	1 286 616 33
2 95	1 253 547 11	1 259 962 66	1 266 284 96	1 272 515 36	1 278 655 19
3 00	1 246 461 46	1 252 671 39	1 258 789 84	1 264 817 28	1 270 755 95
3 05	1 239 425 45	1 245 432 61	1 251 349 53	1 257 177 57	1 262 918 07
3 10	1 232 438 72	1 238 245 91	1 243 964 46	1 249 595 73	1 255 141 04
3 15	1 225 500 88	1 231 110 88	1 236 633 90	1 242 071 28	1 247 424 34
3 20	1 218 611 56	1 224 027 12	1 229 357 40	1 234 603 74	1 239 767 47
3 25	1 211 770 39	1 216 994 23	1 222 134 54	1 227 192 66	1 232 169 90
3 30	1 204 977 00	1 210 011 81	1 214 964 89	1 219 837 57	1 224 631 15
3 35	1 198 231 04	1 203 079 46	1 207 848 00	1 212 537 99	1 217 150 72
3 40	1 191 532 13	1 196 196 79	1 200 783 47	1 205 293 48	1 209 728 10
3 45	1 184 879 93	1 189 363 41	1 193 770 86	1 198 103 58	1 202 362 82
3 50	1 178 274 07	1 182 578 94	1 186 809 77	1 190 967 83	1 195 054 38
3 55	1 171 714 21	1 175 843 00	1 179 899 78	1 183 885 81	1 187 802 31
3 60	1 165 200 00	1 169 155 20	1 173 040 48	1 176 857 05	1 180 606 14
3 65	1 158 731 02	1 162 515 18	1 166 231 46	1 169 881 12	1 173 465 38
3 70	1 152 307 12	1 155 922 55	1 159 472 32	1 162 957 60	1 166 379 58
3 75	1 145 927 77	1 149 376 96	1 152 762 66	1 156 086 04	1 159 348 26
3 80	1 139 592 70	1 142 878 02	1 146 102 08	1 149 266 03	1 152 370 98
3 85	1 133 301 57	1 136 425 38	1 139 490 20	1 142 497 13	1 145 447 27
3 90	1 127 054 05	1 130 018 68	1 132 926 62	1 135 778 93	1 138 576 68
3 95	1 120 849 80	1 123 657 57	1 126 410 95	1 129 111 01	1 131 758 77
4 00	1 114 688 51	1 117 341 67	1 119 942 82	1 122 492 96	1 124 993 10
4 05	1 108 569 84	1 111 070 66	1 113 521 84	1 115 924 37	1 118 279 22
4 10	1 102 493 47	1 104 844 16	1 107 147 64	1 109 404 84	1 111 616 69
4 15	1 096 459 08	1 098 661 85	1 100 819 84	1 102 933 96	1 105 005 10
4 20	1 090 466 36	1 092 523 37	1 094 538 07	1 096 511 33	1 098 444 01
4 25	1 084 514 99	1 086 428 39	1 088 301 97	1 090 136 57	1 091 932 99
4 30	1 078 604 66	1 080 376 56	1 082 111 17	1 083 809 27	1 085 471 63
4 35	1 072 735 05	1 074 367 56	1 075 965 31	1 077 529 06	1 079 059 51
4 40	1 066 905 87	1 068 401 05	1 069 864 04	1 071 295 54	1 072 696 22
4 45	1 061 116 81	1 062 476 70	1 063 806 99	1 065 108 33	1 066 381 35
4 50	1 055 367 55	1 056 594 19	1 057 793 82	1 058 967 07	1 060 114 49
4 55	1 049 657 82	1 050 753 18	1 051 824 18	1 052 871 36	1 053 895 24
4 60	1 043 987 30	1 044 953 37	1 045 897 72	1 046 820 84	1 047 723 21
4 65	1 038 355 70	1 039 194 43	1 040 014 10	1 040 815 15	1 041 597 99
4 70	1 032 762 73	1 033 476 04	1 034 172 98	1 034 853 91	1 035 519 21
4 75	1 027 208 10	1 027 797 90	1 028 374 01	1 028 936 77	1 029 486 46
4 80	1 021 691 51	1 022 159 68	1 022 616 88	1 023 063 36	1 023 499 37
4 85	1 016 212 70	1 016 561 09	1 016 901 23	1 017 233 33	1 017 557 56
4 90	1 010 771 36	1 011 001 81	1 011 226 76	1 011 446 32	1 011 660 64
4 95	1 005 367 22	1 005 481 55	1 005 593 12	1 005 702 00	1 005 808 24
5 00	1 000 000 00	1 000 000 00	1 000 000 00	1 000 000 00	1 000 000 00

running 15 years, 2 months, and 15 days. For the computations here involved, we shall refer to the Sprague tables on pages 740 and 741. The price of our bond (102.75) falls between the prices 1,032,032.65 and 1,026,604.29 at 15 years. The yields at these prices are, respectively, 4.70 and 4.75 per cent. Interpolating, we have the following results:

	4.70		1,032,032.65
	4.75		1,026,604.29
			<hr/>
Yield Difference	.05	Price Difference	5,428.36
	4.70		1,032,032.65
	x		1,027,500.00
			<hr/>
			4,532.65
	$x = 4.70 + .05 \frac{4,532.65}{5,428.36}$		
	$= 4.70 + .04175$		
	$= 4.74175$		

Similarly, for a 15½-year bond:

	4.70		1,032,762.73
	4.75		1,027,208.10
			<hr/>
Yield Difference	.05	Price Difference	5,554.63
	4.70		1,032,762.73
	x		1,027,500.00
			<hr/>
			5,262.73
	$x = 4.70 + .05 \frac{5,262.73}{5,554.63}$		
	$= 4.70 + .0474$		
	$= 4.7474$		

The difference in yield between a 15- and a 15½-year bond is as follows:

15½-year bond.....	4.74740
15 -year bond.....	4.74175
<hr/>	
180 days.....	.00565
75 days.....	x
$\frac{75}{180} \times .00565 = x$	
$x = .00235$	

Since it is true that the longer a premium bond has to run the higher the yield is, and since our point of time is $\frac{75}{180}$ of the period between a 15- and 15½-year bond, we must add .00235 to the yield of a 15-year bond. Our desired result, therefore, is:

Yield of 15-year bond	4.74175
Plus difference for 75 days.....	.00235
	<hr/>
Yield for a 5 per cent bond running 15 years and 75 days.....	4.74410

Ascertaining value of a bond when yield, coupon rate, and maturity are known. The converse situation requires the investor to compute the value of a bond, when the yield at which it is to sell is known. For example, suppose that the price of a 5 per cent bond running 15 years, 2 months, 15 days, to yield 4.75, is required.

At 15¼ years, the value is.....	1,027,208.10
At 15 years, the value is.....	1,026,604.29
	<hr/>
Difference for 6 mos.....	603.81
Difference for 75 days = $\frac{75}{180} \times 603.81$	
	= 251.59
Desired value:	
Value for 15-year bond	1,026,604.29
Plus added value for 75 days.....	251.59
	<hr/>
	1,026,855.88

The method of proportion again is not absolutely accurate, for the amortization or accumulation for each day is taken as 1/180 of the half year's total, although the interest proceeds by multiplication, and the multiplicand increases each day. (The error is so slight that it may be ignored in everyday practice unless very large sums are being invested.)

Interpolation for time based on Equitable tables. The Equitable Trust Company Rapid Bond Tables are designed to facilitate interpolation between six-months periods. These tables are constructed for bonds bearing interest at rates of 3, 3½, 4, 4½, 5, 6, and 7 per cent, and maturing in from six months to fifty years in half-yearly periods, with basic yields ranging from 3 per cent to 6 per cent, in advances of 5/100 of 1 per cent, with ⅛, ⅜, ½, and ⅝ differences.

Each basic price is followed by the decimal difference to six

EQUITABLE BOND TABLES

20 YEARS

Interest Payable Semiannually

% Per Annum	3%	3½%	4%	4½%	5%	6%	7%	% Per Annum
4.50	80.3540 .050216 .001073	86.9032 .033466 .001115	93.4516 .016733 .000557	100.0000	106.5484 .016733 .000557	119.6451 .050216 .001073	132.7419 .083666 .002788	4.50
4.55	79.7870 .051366 .001712	86.3073 .034783 .001159	92.8276 .018216 .000607	99.3480 .001666 .000055	105.8683 .014916 .000497	118.9090 .048033 .001601	131.9406 .081183 .002706	4.55
4.60	79.2241 .052483 .001749	85.7166 .036083 .001202	92.2090 .019666 .000655	98.7015 .003283 .000109	105.1940 .013116 .000437	118.1789 .045916 .001530	131.1638 .078733 .002624	4.60
4 ½	78.9446 .053033 .001767	85.4232 .036716 .001223	91.9018 .020400 .000680	98.3804 .004083 .000136	104.8589 .012250 .000408	117.8161 .044883 .001496	130.7733 .077516 .002583	4 ½
4.65	78.6663 .053600 .001786	85.1310 .037350 .001245	91.5958 .021116 .000703	98.0606 .004883 .000162	104.5253 .011366 .000378	117.4540 .043833 .001461	130.3846 .076316 .002543	4.65
4.70	78.1134 .054666 .001822	84.8506 .038583 .001286	90.9879 .022516 .000750	97.4251 .006433 .000214	103.8623 .009050 .000311	116.7368 .041800 .001393	129.6113 .073950 .002465	4.70
4.75	77.5664 .055716 .001857	84.5753 .039800 .001326	90.3852 .023883 .000796	96.7951 .007966 .000265	103.3049 .007966 .000265	116.0247 .039100 .001326	128.8445 .074033 .002397	4.75
4.80	77.0222 .056733 .001891	84.3049 .040936 .001365	89.7877 .025216 .000840	96.1704 .009460 .000315	102.5531 .009300 .000315	115.3185 .037816 .001269	128.0840 .069333 .002311	4.80
4.85	76.4839 .057733 .001924	84.0366 .042116 .001403	89.1953 .026516 .000883	95.5510 .010916 .000363	101.9067 .009460 .000363	114.6181 .035883 .001196	127.3295 .067083 .002236	4.85
4 ¾	76.1165 .058216 .001940	83.7588 .042700 .001423	88.9010 .027166 .000905	95.1433 .011650 .000388	101.5866 .009460 .000388	114.2701 .034933 .001164	126.9545 .065983 .002199	4 ¾
4.90	75.9503 .058700 .001956	83.4792 .043250 .001441	88.6080 .027800 .000926	94.9369 .012250 .000411	101.2658 .009460 .000411	113.9235 .033983 .001132	126.5813 .064866 .002162	4.90
4.95	75.4214 .059633 .001987	83.2036 .044350 .001478	88.0258 .029050 .000958	94.3280 .013766 .000458	100.6302 .009533 .000458	113.4346 .032116 .001070	126.8300 .062700 .002090	4.95
5.00	74.8972 .060550 .002018	81.1729 .045416 .001513	87.4486 .030283 .001009	93.7243 .015133 .000504	100.0000	112.5514 .030283 .001009	125.1028 .060550 .002018	5.00
5.05	74.3776 .061450 .002048	80.6270 .046466 .001548	86.8764 .031483 .001049	93.1257 .016483 .000549	99.3751 .009500 .000500	111.8798 .028466 .000948	124.3725 .058450 .001948	5.05
5.10	73.8627 .062333 .002077	80.0858 .047483 .001582	86.3090 .032650 .001088	92.5322 .017816 .000593	98.7554 .009500 .000500	111.2017 .026366 .000890	123.6481 .056383 .001879	5.10
5 ½	73.6096 .062766 .002092	79.8170 .047983 .001599	85.6372 .033733 .001107	92.1372 .018450 .000615	98.4475 .009500 .000513	110.8078 .025333 .000861	123.2881 .054366 .001845	5 ½
5.15	73.3572 .063183 .002106	79.5494 .048500 .001616	85.7465 .034733 .001126	91.9437 .019100 .000636	98.1409 .009500 .000517	110.5352 .024466 .000847	122.9995 .052366 .001812	5.15
5.20	73.1047 .064000 .002133	79.0175 .049450 .001648	85.1880 .034916 .001163	91.3602 .020366 .000678	97.5315 .009500 .000517	109.8741 .023466 .000775	122.2167 .050366 .001745	5.20
5.25	72.8447 .064800 .002160	78.4903 .050400 .001680	84.6359 .036000 .001200	90.7816 .021600 .000720	96.9272 .009500 .000524	109.2184 .021600 .000720	121.5097 .050400 .001680	5.25
% Per Annum	3%	3½%	4%	4½%	5%	6%	7%	% Per Annum

Interest Payable Semiannually

20 YEARS

EQUITABLE BOND TABLES

20 YEARS

Interest Payable Semiannually

% Per Annum	3%	3½%	4%	4½%	5%	6%	7%	% Per Annum
5.25	72.3447 .064800 .002160	78.4903 .050400 .001680	84.6359 .036000 .001300	90.7816 .021600 .000720	96.9272 .007200 .000240	109.2184 .021600 .000720	121.5097 .050400 .001680	5.25
5.30	71.8476 .065583 .002186	77.9677 .051333 .001711	84.0878 .037083 .001236	90.2079 .022816 .000760	96.3279 .008550 .000285	108.5681 .019966 .000665	120.8083 .048483 .001616	5.30
5.35	71.3548 .066333 .002211	77.4496 .052233 .001741	83.5443 .038116 .001270	89.6390 .024000 .000800	95.7337 .009883 .000329	107.9231 .018350 .000611	120.1126 .046583 .001552	5.35
5¼	71.1101 .066716 .002233	77.1922 .052683 .001756	83.2743 .038633 .001287	89.3563 .024566 .000818	95.4384 .010533 .000351	107.6026 .017566 .000585	119.7668 .045650 .001521	5¼
5.40	70.8664 .067083 .002236	76.9359 .053100 .001770	83.0054 .039133 .001304	89.0749 .025150 .000838	95.1444 .011183 .000372	107.2834 .016766 .000558	119.4224 .044716 .001490	5.40
5.45	70.3823 .067816 .002260	76.4267 .053966 .001798	82.4711 .040116 .001337	88.5156 .026300 .000876	94.5600 .012450 .000415	106.6489 .015210 .000507	118.7377 .042900 .001430	5.45
5.50	69.9024 .068500 .002283	75.9219 .054800 .001826	81.9414 .041100 .001370	87.9609 .027400 .000913	93.9805 .013700 .000456	106.0195 .013700 .000456	118.0586 .041100 .001370	5.50
5.55	69.4267 .069183 .002306	75.4214 .055600 .001853	81.4162 .042050 .001401	87.4110 .028483 .000949	93.4058 .014933 .000497	105.3953 .012200 .000406	117.3848 .039330 .001311	5.55
5.60	68.9551 .069833 .002327	74.9253 .056400 .001880	80.8955 .042983 .001432	86.8656 .029533 .000984	92.8356 .016116 .000537	104.7761 .010750 .000384	116.7265 .037600 .001253	5.60
5¼	68.7209 .070150 .002338	74.6783 .056783 .001892	80.6367 .043416 .001447	86.5947 .030066 .001002	92.5526 .016700 .000556	104.4688 .010033 .000334	116.3843 .036750 .001225	5¼
5.65	68.4877 .070466 .002348	74.4334 .057166 .001905	80.3791 .043866 .001462	86.3249 .030583 .001019	92.2706 .017283 .000576	104.1620 .009300 .000310	116.0534 .035900 .001196	5.65
5.70	68.0244 .071100 .002370	73.9458 .057933 .001931	79.8672 .044766 .001492	85.7886 .031600 .001053	91.7100 .008433 .000614	103.5529 .007883 .000262	115.3957 .034233 .001141	5.70
5.75	67.5651 .071700 .002390	73.4623 .058650 .001955	79.3596 .045616 .001520	85.2568 .032583 .001086	91.1541 .019550 .000651	102.9486 .006516 .000217	114.7432 .032583 .001086	5.75
5.80	67.1098 .072266 .002408	72.9830 .059366 .001978	78.8563 .046466 .001548	84.7295 .033550 .001118	90.6028 .020650 .000688	102.3493 .005166 .000173	114.0958 .030966 .001032	5.80
5.85	66.6584 .072833 .002427	72.5087 .060200 .002006	78.3572 .047266 .001575	84.2066 .034500 .001150	90.0560 .021716 .000723	101.7548 .003833 .000127	113.4536 .029383 .000979	5.85
5¼	66.4342 .073100 .002436	72.2718 .060400 .002013	78.1093 .047683 .001589	83.9468 .034966 .001165	89.7843 .022250 .000741	101.4594 .003183 .000106	113.1344 .028616 .000953	5¼
5.90	66.1110 .073366 .002445	72.0367 .060716 .002023	77.8624 .048066 .001602	83.6881 .035416 .001180	89.5138 .022783 .000759	101.1651 .002533 .000084	112.8165 .027833 .000927	5.90
5.95	65.7675 .073900 .002463	71.5696 .061366 .002045	77.3717 .048833 .001627	83.1739 .036333 .001211	88.9760 .023800 .000793	100.5802 .001250 .000041	112.1844 .026316 .000877	5.95
6.00	65.3278 .074400 .002480	71.1065 .062000 .002066	76.8852 .049600 .001653	82.6639 .037206 .001240	88.4426 .024800 .000820	100.0000	111.5574 .024800 .000826	6.00
% Per Annum	3%	3½%	4%	4½%	5%	6%	7%	% Per Annum

Interest Payable Semiannually

20 YEARS

places for one month, and also for one day, between each six-months' period. In this way it is very easy to establish the price basis of a bond that has other than an even number of years or half years to run. On pages 744 and 745 is a section of these tables for bonds maturing in 20 years. At what price will a 5 per cent bond having 20 years, 3 months, and 6 days to run sell to yield 5.60?

Price for a 20-year bond	92.83580
.016116 \times 3 (mos.) . . . . .	.048348
.000537 \times 6 (days) . . . . .	.003222
	<hr/>
Subtract. . . . .	.05157
	<hr/>
Price for a bond maturing in 20 years, 3 mos., and 6 days.	92.78423

In the case of a premium bond, of course, it becomes necessary to add the difference, for the longer such a bond has to run to maturity, the greater the premium must be to effect a given yield. On the other hand, in the case of a discount bond, the longer the bond runs to maturity, the greater is the discount. At what price must a 6 per cent bond, having 20 years, 3 months, and 6 days to run, sell to yield 5.60?

Price for a 20-year bond	104.7761
.010750 \times 3 (mos.) . . . . .	.032250
.000358 \times 6 (days) . . . . .	.002148
	<hr/>
Add . . . . .	.034398
	<hr/>
Price for a bond maturing in 20 years, 3 mos., and 6 days.	104.810498

Bonds of optional duration. Many bonds that have a definite maturity date are nevertheless redeemable before maturity at the option of the issuing company. The terms under which redemption may take place are various.⁷ They may be callable any time after issuance, at a specified date, before a definite date, between certain dates, or on and after a stated date. They may be called at par or at a premium. All these matters, of course, may have an effect on value or yield.

Inasmuch as the length of time the bond has to run is the variable quantity, the problem is to find whether the earliest

⁷ See Chapter 9.

or latest maturity should be used in computing the price or the return. Within certain limits, the interests of the borrower and lender are antagonistic, and the option of payment lies with the borrower. Consequently, the lender should adopt the most conservative basis of computation and figure the value of or the return from his investment on the least favorable basis. The rule employed is to compute the yield upon the basis of that maturity option which is least favorable to the bondholder.

Rule for computing bonds redeemable at par. If the cost of the bond and the redemption price are both 100, or par, then the duration is of no consequence, for both the coupon rate and the effective yield are the same.

If the cost is below par—that is, if the bond is purchased at a discount—and the redemption price is par, then the longer the duration, the less the yield. The investor, therefore, should compute his yield on the basis of ultimate maturity.

Conversely, when the cost is above par, or at a premium, and the bonds are redeemable at par, then the longer the bonds run, the greater is the yield. Therefore, in such cases, it is proper to assume the shortest time the bond may run.

Rule for computing bonds redeemable at a premium. When the redemption, or call price, of a bond is at a premium, and the cost of the bond is at a discount, at par, or at a premium not greater than that at which the bond is redeemable, the lower yield will result from the assumption that the bond will be paid at maturity. However, if the cost price is above the redemption price, it will be necessary to compute the net yield on both the final and the optional maturity bases in order to ascertain which one of the two bases gives the lower yield basis, and hence which one is the basis upon which the rate of the return is computed.

Computation of yields for serial issues. In buying an issue of bonds known as “serials,” where a certain portion of the issue matures periodically, investment dealers sometimes average the life of the issue and then, by the use of bond tables, base their computations on the average maturity. A more accurate method requires that a separate price be computed for each maturity, and the average of these prices taken. The error in the first method arises from the fundamental principle that the net return on a bond is based on the reinvestment at compound interest of a certain portion of the coupons as they severally become due. Each maturity of a serial issue must be computed

separately, in order that this principle of compounding the interest may have its own application.

Accrued interest. Stocks are ordinarily quoted "flat"—that is, the price includes the price of the stock plus any "accrued dividends." This is invariably the rule for stocks sold on the New York Stock Exchange. New issues of preferred stocks that are offered by investment bankers, however, may be quoted "and accrued dividends." Bonds not in default are generally quoted "and accrued interest," whereas bonds in default and income bonds are usually quoted flat, any accrued interest being included in the price. Where bonds are quoted "and accrued interest," it is necessary to make a further adjustment before the actual price to the purchaser is obtainable. Thus, let us assume that on the first of September, a purchase is made of a 20-year, 5 per cent bond at 113.68 and accrued interest, the interest dates of which are January 1 and July 1. The purchaser will pay \$1,136.80, which is the principal and premium of the bond, and also the interest on \$1,000, the face value of the bond, from July 1 to September 1 at 5 per cent. This interest amounts to \$8.33 on a \$1,000 bond. In other words, the coupon, which matures the following January 1, to the amount of \$25, may be said to begin to ripen immediately after July 1. On September 1, the coupon has acquired a value of one third of the total coupon, or \$8.33. The purchaser, therefore, pays \$1,136.80, plus \$8.33, or \$1,145.13. This payment for accrued interest is not regarded as a part of the principal invested but as an advance to obtain the partly earned coupon. It is subtracted from the amount of the coupon upon the receipt of the latter, in order to show the net interest income actually earned by the purchaser, in this case for the period between September 1 and January 1.

Computation of yields for bonds sold flat. It is sometimes desired to ascertain what a bond will yield at a given price when sold flat (which means that the purchaser pays no accrued interest). A 20-year bond, bearing 5 per cent interest, payable semiannually, February and August, is offered for sale on April 1, at 115 flat. What is the effective yield? The first problem is to find out how much interest has actually accrued on the bond. In this case it is two months' interest, or again \$8.33. Deducting this amount from the price of the bond, we obtain \$1,141.67 (114.17 at 2 decimals). It may be said then

that a quotation of 114.17 and accrued interest is equivalent to a quotation of 115 flat. It then becomes necessary to determine the yield of a 20-year, 5 per cent bond selling at 114.17.

Segregation of income and principal of investments in estate accounting. In the handling of bond accounts of trust estates, questions often arise as to the relative interests of the life tenant and the remainderman.⁸ Where funds are placed in the form of a trust, from which the *income* goes to one party during his or her life, and the principal to the remainderman at the death of the life tenant, two distinct problems exist. The maximum income should be produced in the interest of the life tenant, yet the principal must be maintained intact. Where bonds are purchased at par at the beginning of the trust, there is no question as to what constitutes income and what constitutes principal. On the other hand, a bond purchased at a premium must be amortized, so that at maturity the par value plus the amortization will equal the original value. In other words, a part of the interest received from premium bonds must be put into a fund before payment is made to the life tenant, the fund to grow to an amount equal to the premium at the time the bond is paid.

Conversely, bonds purchased at a discount enjoy income from accumulation as well as from interest. Theoretically, the life tenant should receive the benefit of such accumulation. In practice, the segregation of income from principal is somewhat involved and is often neglected, or else the problem is met by the purchase of approximately an equal amount of premium and discount bonds. Sometimes trustees follow the simple and crude, but conservative, rule of ignoring discount as income but charging off any premiums against current income at the time the bond is purchased.

Where income and principal are to be accurately segregated, however, it is desirable to use schedules of amortization and accumulation.⁹ The general principle involved may be stated as follows: "The cost of the bonds equals the principal or par value plus the premium, or minus the discount." "The pre-

⁸ For a definition of these terms, see page 103.

⁹ For a complete discussion of various schedules of amortization and accumulation, the reader is referred to Sprague, Charles E., and Perrine, L. L., *The Accountancy of Investment* (New York: The Ronald Press, 1922). See particularly Chapter XI.

mium or discount of a bond, . . . bought above or below par, is the present worth of an annuity of the difference of the rates."

Premium bond. To cover briefly the entire mathematical history of a loan, let us assume a 6 per cent, 4-year, semi-annual bond, with a par value of \$1,000, issued February 1, 1934, and bought to yield $4\frac{1}{2}$ per cent. The results appear in the following table:

<i>Date</i>	<i>Cash Interest</i>	<i>Net Income</i>	<i>Amorti- zation</i>	<i>Book Value</i>
1934 Feb. 1 (cost) . . . . .	.....	.....	.....	\$1,054.40
Aug. 1	\$30.00	\$23.70	\$6.30	1,048.10
1935 Feb. 1	30.00	23.00	6.40	1,041.70
Aug. 1	30.00	23.40	6.60	1,035.10
1936 Feb. 1	30.00	23.30	6.70	1,028.40
Aug. 1	30.00	23.10	6.90	1,021.50
1937 Feb. 1	30.00	23.00	7.00	1,014.50
Aug. 1	30.00	22.80	7.20	1,007.30
1938 Feb. 1	30.00	22.70	7.30	1,000.00

The original cost of \$1,054.40 is multiplied by one half of the annual yield rate, 4.50 per cent, to obtain the net income of \$23.70 for the first half year. The amount by which the coupon of \$30 exceeds the income is \$6.30 and represents a return of a part of the principal tied up in the original investment in premium. With so much principal returned, the book value of the bond is written down to \$1,048.10, and the \$6.30 is reinvested. Any income received from such investment will take the place of the decreasing income from the bond. In the second half year, the yield rate is applied to the reduced book value to obtain the net income figure of \$23.60 for that period. Following down the net income column, one notes the various amounts to which the life tenant is entitled, or which may be considered as true income. The person entitled to the fund at the death of the life tenant is protected by the amortization fund. At any interest date the book value, which is the investment, will, when added to the accumulated sums which have been laid aside, equal the original capital.

Discount bonds. Bonds purchased at a discount are treated in a similar fashion, except that the coupon rate *plus* the accumulation equals the true income. Thus, suppose a 3 per cent, 4-year, semiannual bond with a par value of \$1,000 were issued February 1, 1934, at a price to net $4\frac{1}{2}$ per cent. It is worth \$945.60 at the time of purchase, and its history is as follows:

<i>Date</i>	<i>Cash Interest 3%</i>	<i>Net Income 4½%</i>	<i>Accumulation</i>	<i>Book Value</i>
1934 Feb. 1 (cost).....	.....	.....	.....	\$ 945.60
Aug. 1.	\$15.00	\$21.30	\$6.30	951.90
1935 Feb. 1.....	15.00	21.40	6.40	958.30
Aug. 1.....	15.00	21.60	6.60	964.90
1936 Feb. 1.....	15.00	21.70	6.70	971.60
Aug. 1.....	15.00	21.90	6.90	978.50
1937 Feb. 1.....	15.00	22.00	7.00	985.50
Aug. 1.....	15.00	22.20	7.20	992.70
1938 Feb. 1.....	15.00	22.30	7.30	1,000.00

Stock dividends, recurring and special. A similar problem of distinguishing between principal and income arises in connection with stock dividends or dividends paid out as a distribution of assets—liquidating dividends, so to speak. In such cases it is essential that the principal shall be kept intact, while all remaining income is paid to the life tenant. Let us illustrate this case by a simple example. A died in 1920 and left \$500,000 of stock in corporation X, in a life trust for the benefit of B, after whose death the principal goes to C. The corporation pays regular dividends of 6 per cent from 1920 until 1925, at which time a special 50 per cent cash dividend is declared out of surplus. The question is: "To how much of this dividend is B entitled?" We shall assume the following balance sheet for corporation X at the time of A's death (1920), and in 1925:

<i>1920</i>			
Assets.....	\$4,000,000	Liabilities.....	\$1,500,000
		Capital.....	2,000,000
		Surplus.....	500,000
	<u>\$4,000,000</u>		<u>\$4,000,000</u>
<i>1925</i>			
Assets.....	\$7,500,000	Liabilities.....	\$4,250,000
		Capital.....	2,000,000
		Surplus.....	1,250,000
	<u>\$7,500,000</u>		<u>\$7,500,000</u>

From the above data it is seen that the \$500,000 of stock left in trust amounted to one fourth of the entire issue outstanding, and therefore was entitled to a quarter interest in the \$500,000 surplus carried on the books at that time. The

book value of the stock, based on the 1920 balance sheet, was thus \$625,000, which must be kept intact for the remainderman. The payment of a 50 per cent cash dividend in 1925 would affect the balance sheet of the corporation in the following manner:

Assets.....	\$6,500,000	Liabilities.....	\$4,250,000
		Capital.....	2,000,000
		Surplus.	250,000
	<hr/>		<hr/>
	\$6,500,000		\$6,500,000
	<hr/>		<hr/>

Such a payment reduces the book value of the \$500,000 of stock in the trust fund from an original value of \$625,000 to \$562,500. It is necessary, therefore, to retain \$62,500 of the \$250,000 cash due to the trust holding, as a result of the dividend, in the trust fund; otherwise an impairment of principal will result.¹⁰

The principle here involved is clearly set forth in an important New York case.¹¹

1. Ordinary dividends, regardless of the time when the surplus out of which they are payable was accumulated, should be paid to the life beneficiary of the trust.

2. Extraordinary dividends, payable from the accumulated earnings of the Company, whether payable in cash or in stock, belong to the life beneficiary unless they encroach in whole or in part upon the capital of the trust fund as received from the testator or maker of the trust or invested in stock, in which case such extraordinary dividends should be returned to the trust fund or apportioned between the trust fund and the life beneficiary in such a way as to preserve the integrity of the trust fund.

Determination of stock yields. The problem of determining stock yields is very much simpler than that of bond yields, for there is no return of principal—at least there is no promised date at which the principal comes due. In order to ascertain the yield on stock at any price, therefore, it is necessary only to divide the current dividend rate by the price at which the stock is selling. A stock that is selling at 90 and paying \$7 a year thus yields 7.7 per cent. This rate is called the stock or current yield. Unlike the fixed interest return upon a bond, the dividend rate for common stock is variable. It fluctuates

¹⁰ For a more extended treatment of this problem and allied problems, see Finney, H. A., *Principles of Accounting* (New York: Prentice-Hall, Inc., rev. ed., 1934), Vol. II, Chapters 55 and 56.

¹¹ In re Osborne, 209 N. Y. 450

largely with earnings and is determined at the discretion of the board of directors. In the computation of the yield on common stock, therefore, the result must be clearly thought of as a current, and not as a fixed, yield.

Mathematics of convertible securities. Where a security carries with it the right of conversion into another security, it frequently becomes necessary to compute the ratio of conversion and to determine whether conversion is profitable. The various types of convertible issues, as well as some of the mathematics of conversion, have already been considered.¹² Where conversion is on a par for par basis, the operation is a relatively simple matter, for, when the price of the "conversion" security¹³ is above that of the security that is convertible, conversion is profitable. Convertible securities may be said to have two values: the one a purely investment value; the other arising from the conversion privilege. The value of a convertible security will not go below its investment value, regardless of the value of the conversion security. On the other hand, the value of a convertible security may go substantially above its investment value, if the price of the conversion security so warrants.

The mathematics of conversion is somewhat more complicated when the conversion ratio is other than par for par. Let us assume that the bonds of corporation A are convertible into its common stock at 110. This means that bonds may be used to purchase the common stock of the corporation and that it takes \$110 *par value* of bonds to purchase \$100 *par value* of stock. The conversion ratio is not expressed in terms of market values, but market values determine whether or not conversion is profitable. Let us assume further that the bonds have an independent investment value of 96; that is, as an investment without reference to the conversion privilege, they are worth 96. The stock, we shall assume, is quoted at 105. Will the conversion privilege here raise the value of the bonds above their investment value? This question can be answered by determining whether the stock can be purchased more cheaply with cash or with bonds at 96. Bonds of \$110 par value, worth at market price $\$96 \times 110$ per cent, or \$105.60, will purchase \$105 worth of stock. It can hardly be said at this point that

¹² See Chapter 9.

¹³ Used to denote the security into which the convertible security may be converted.

the conversion privilege would have any effect on the price of the bonds; however, at that level, some investors would be likely to anticipate a rise in the price of the stock and bid up the bonds. Let us suppose that the price of the stock advances to 120. Will the bonds, valued on their conversion basis, be above or below their investment value? Bonds at \$110 *par value* equal stock at \$120 *market value*. The market value of the bonds should at least equal $120 \div 110$ per cent, or 109.09; otherwise, speculators would purchase the bonds, convert them into stock, and sell the stock at 120, thus making a profit through such arbitrage operations. Since the price of 109.09 is in excess of 96, or investment value, it may be said that the conversion privilege has raised the price of the bonds by the amount of the difference.¹⁴

The methods by which various companies handle conversion differ. Some companies charge the investor accumulated interest, or dividends, on the new security and credit accrued interest, or dividends, on the old. In other cases, no adjustment is made, the securities being exchanged on a flat basis.¹⁵ This method may operate slightly to the disadvantage of the investor who converts, where interest has accrued on the convertible security but not on the conversion issue. In such cases a further slight adjustment should appear in market prices; this adjustment will cause prices to vary slightly from their stated conversion values.

Subscription rights. The mathematics of subscription rights has already been discussed at some length and need be reviewed only briefly at this point.¹⁶ Corporations that increase their capital stock are ordinarily required to allow present stockholders the first rights to subscribe thereto; otherwise it would be possible to disturb the relative distribution of the present equities in a corporation and to shift the control of the company through new stock issues. When stock is so offered, the present stockholders are allowed to subscribe to the new issue in proportion to their present holdings and on equal terms. Often the subscription price is below the current market price. Thus, let us assume that corporation A, with \$1,000,000 of capi-

¹⁴ For further examples of convertible securities, see Chapter 9.

¹⁵ Interest is included in the price.

¹⁶ See p. 247. For a more extended discussion, see Guthmann, H. G., and Dougall, H. E., *Corporate Financial Policy* (New York: Prentice-Hall, Inc., 1940), pp. 389-413.

tal stock outstanding, par \$100, decides to increase its stock to \$1,250,000. The current market for its stock is 130. The new stock, however, is offered to the stockholders at 100, in the proportion of one share of new stock for every four shares of old stock held. What is the value of the rights going with a share of old stock?

Let x = the required value

P = the difference between market value and subscription price (in this case 30)

R = the percentage rate of increase (in this case 25 per cent)

Then

$$x = \frac{P \times R}{R + 1} \text{ or } \frac{30 \times .25}{.25 + 1} \\ = \$6$$

Stock dividends. The declaration of stock dividends gives rise to some minor questions of a mathematical nature, but if one regards them as a capitalization of surplus, there will be no confusion. The declaration of a stock dividend, *per se*, does not in any way affect the proportionate participation of the stockholder in the corporation, nor does the corporation thereby pay out any of its assets. In its simplest form, the changes in the accounts of a corporation resulting from the declaration of a stock dividend may appear as follows:

BALANCE SHEET OF CORPORATION X

Assets.....	\$1,000,000	Common Stock (par \$100) ..	\$ 300,000
		Liabilities.....	400,000
		Surplus.....	300,000
	<u>\$1,000,000</u>		<u>\$1,000,000</u>

Let us assume that the corporation elects to pay a 50 per cent stock dividend. Such a dividend results in an increase in the capital stock item, of \$150,000 and a decrease in surplus of a similar amount. In other words, the balance sheet, after payment of the dividend, will take the following form:

Assets.....	\$1,000,000	Common Stock (par \$100) ..	\$ 450,000
		Liabilities.....	400,000
		Surplus.....	150,000
	<u>\$1,000,000</u>		<u>\$1,000,000</u>

If the dividend rate on the old stock is maintained for the .

new stock, or if the dividend rate is not reduced proportionately, an increased return results for the stockholder. Otherwise, the position of the stockholder is not substantially different from what it was before the dividend, except that his proportionate equity is evidenced by a greater number of shares than before.

The declaration of a stock dividend may be anticipated by a rise in the price of the old shares of a corporation, but the mere fact that a split-up (as a stock dividend is sometimes called) takes place does not in itself affect the value of the equity represented by the stock of the company. Thus, if the market value of the stock of corporation X was \$200 a share before the declaration of the previously assumed 50 per cent dividend, it would sell ex-dividend at \$133.33 a share; that is, one and a half new shares would equal the value of one old share.

Strictly speaking, a stock split-up, as contrasted with a stock dividend, means that the number of shares of stock outstanding is increased, and that either the par value thereof is decreased per share so that the total par amount outstanding remains unchanged or the stock is changed into no par value stock. In the present case, for example, the corporation might have changed the stock into 18,000 shares of no par stock and given 4 shares of new stock for each share of old. In this case the new stock would have had a market value at the time of split-up of \$50 a share. If one assumes further that the old dividend rate was \$10 a share and that the rate on the new stock is to be \$3 a share, the result would be equivalent to an increase of \$2 a share on the old stock.

The student might well ask at this point: "Why is it necessary to go to all the trouble of declaring stock dividends?" To be sure, the same results may be effected by a change in the dividend rate on the old stock. Yet the effect of a stock split-up is to lower the unit price per share of stock. A wider market is created for stock selling at \$50 a share than for stock selling at \$200 a share. There are more buyers for 4 or 5 shares of stock at \$50 than for 1 share of stock at \$200 or \$250 a share. In this way, at least, an indirect relation exists between the declaration of stock dividends and the market value of the stock of a company.¹⁷

Dividends may be declared in scrip or even in the bonds of a

¹⁷ Other reasons for the declaration of stock dividends involve questions of taxation, a desire to reduce the current dividend rate on stock in order to distract attention from large earnings, or the desire to capitalize surplus.

corporation. Where the dividend is in the form of an obligation of the company, the result is essentially that of a declaration of a deferred cash dividend. Surplus or earnings must be debited, and the bond account, instead of cash, credited for the amount of the dividend. The same results might have been obtained, so far as the corporation is concerned, if it had borrowed the money and paid a cash dividend.

The Mechanics of Investment

Purchase and sale of stocks—types of houses. Stocks may be purchased from brokers who are members of some stock exchange, from nonmember brokers, or from investment banking houses.¹ Strictly speaking, the broker, whether or not he is a member of a particular exchange, does not maintain a position in securities; that is, he does not own securities himself, but buys and sells on a commission basis. The investment house, in contrast, owns certain securities which it offers for sale at stated prices in the same way that a retail or a wholesale merchant offers his wares for sale. Despite this theoretical distinction, however, some investment houses execute orders, usually through a correspondent brokerage firm, and some brokers buy and sell stocks on their own account.

Commissions. From the investor's standpoint, the difference between purchasing securities on a brokerage basis and purchasing from a house that owns them outright is largely a question of commissions. If an order is placed with a broker to purchase stocks or bonds in the open market, the total charge will include not only the price of the securities but a commission as well. Brokers operating on exchanges charge standard commissions for buying and selling. On the New York Stock Exchange the charges for transactions in most stocks are as shown on page 759,¹ save that on every transaction which in-

¹For further rules of New York Stock Exchange on commissions for ten-share unit stocks, for subscription rights, and between members, see Appendix VII of Huebner, S. S., *The Stock Market* (New York: D. Appleton-Century Co., rev. ed., 1934).

volves an amount of \$200 or more, the minimum commission shall be not less than \$5; if under \$200, not less than \$3.

In addition to the commission, purchasers or sellers of listed stocks in less than 100-share lots have their orders executed by odd-lot specialists, acting as dealers, who execute on the basis of prices in subsequent trades of 100-share lots and charge a fee of from $\frac{1}{8}$ to $\frac{1}{4}$ of a point. The broker who represents the

<i>Price of Stock</i>	<i>Commission per Share</i>
1/256 of \$1.....	0.1¢ per share
1/128 of \$1.....	0.15¢ per share
From 1/64 of \$1 to 1/16 of \$1.....	0.5¢ per share
From 3/32 of \$1 to 7/32 of \$1.....	1.0¢ per share
From 1/4 of \$1 to 15/32 of \$1.....	1.5¢ per share
From 1/2 of \$1 to 31/32 of \$1.....	3.0¢ per share
From \$1 to \$1 7/8.....	5.0¢ per share
For each additional \$1 or fraction thereof up to \$10..	1.0¢ additional
From \$10 to \$19 7/8 ...	14.0¢ per share
For each additional \$10 or fraction thereof.....	1.0¢ additional

investor charges his regular commission as well. The trading unit on the larger exchanges is 100 shares.

Stocks sold on a net basis. In the case of stocks that are purchased or sold for the account of the house, whether it does a brokerage or a banking business, a net price which includes all commissions is ordinarily quoted to the customer. Thus, for unlisted stocks, which are traded in by houses that specialize in their purchase and sale, the market is established by bid and offer prices. Such houses offer to sell stock at one price and offer to purchase it at another. This spread may be as high as 5 or 10 points for inactive stocks, whereas, for stocks actively traded in, the market is much closer.

Transfer taxes. A Federal stamp tax is levied on original issues of stock, amounting to 10 cents for each \$100 of par value, or fraction thereof, and 4 cents per \$100 on each transfer thereafter. However, if the current selling price is \$20 or more per share, the 4-cent rate changes to 5 cents. No par stock is taxed as though of \$100 par value. This transfer tax must be paid by the seller. Accordingly, in the case of brokerage transactions, the seller has deducted from the proceeds of the sale not only the broker's commission, but the tax as well. In the case of outright purchases the purchasing house may or may not agree to pay the transfer tax.

In addition to the Federal transfer tax, a state tax is imposed on the sale of securities in Florida, Massachusetts, New York,

Pennsylvania, and South Carolina. This tax is imposed on the sale, agreements to sell, memoranda of sale, or transfer of all stock, and, is nominal in amount, varying from two to ten cents per share. It is likewise payable by the seller and must be paid whether the transfer of stock is made on the books of the company, by assignment in blank, by delivery, or by any paper transferring the beneficial or legal title, or merely the possession of the stock or certificate, although agreements evidencing the deposit of securities as collateral for loans are exempt.

Transfer of stock. Stock certificates are negotiable instruments. Each certificate is made out in the name of the owner, who subsequently can transfer title either by indorsing the certificate to a specific party, by blank indorsement, or by executing a separate power of attorney which authorizes someone else, usually a bank or a broker, to transfer the stock.

On the face of each certificate of stock will appear the serial number, the total amount of the issue, the number of shares represented by the certificate, proper signatures by the officers of the company, and the necessary authentication by the registrar and transfer agent. On the back of the certificate is a blank form of power of attorney, with bill of sale and power of substitution. This form usually appears as follows:

For value received, hereby sell, assign, and transfer unto : shares of the capital stock represented by the within certificate and do hereby irrevocably constitute and appoint attorney to transfer the said stock on the books of the within-named company with full power of substitution in the premises.

Dated, 19
In the presence of:
.

Notice. The signature to this assignment must correspond with the name as written on the face of this certificate in every particular without alteration or enlargement, or any change whatever.

Corporations customarily maintain three books in connection with stock transfers. A certificate book is kept, similar in some ways to an ordinary check book, which contains a series of certificates and stubs. When a new certificate is issued, the name of the owner, and, in the event of transfer, the name of the former owner, the date of issue, and the number of shares are all entered on the stub. When the certificate is returned to the company for transfer, it is marked "Canceled" and reattached

to the original stub. A stock record book is kept for the purpose of recording all transfers and issues. A third book contains a list of all the stockholders of the corporation and their individual holdings.

When a stockholder wishes to transfer his stock, he may either indorse it in blank or indicate the name of the transferee on the certificate. The latter alternative is often preferable since otherwise the certificate may be lost or stolen, and if it should then pass into the hands of an innocent purchaser for value, such person would have a valid title as against the unfortunate loser. The company, upon receiving the old certificate with instructions to issue a new certificate in the name of another holder, cancels the old certificate and makes the necessary changes in its records. The new certificate must be authenticated by the transfer agent and the registrar, who are independent of the corporation.

Uniform stock transfer law. A uniform stock transfer law was approved in 1909 by the Commissioners on Uniform State Laws. This law has been adopted, with slight variations, by Alaska and the following 20 states: Arkansas, Colorado, Connecticut, Idaho, Illinois, Indiana, Louisiana, Maryland, Massachusetts, Michigan, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Dakota, Tennessee, Virginia, West Virginia, and Wisconsin.² The essential provisions may be briefly outlined. Title to securities may be transferred by the delivery of certificates when indorsed in blank or attached to a written assignment. When instructions are given as to the new holder, a new certificate in his or her name is required. If the indorsement was secured by fraud or duress, or if delivery was made without authority of the owner, the transfer may be declared void in case the certificate does not come for consideration into the possession of a third party who is ignorant of any illegality. Lack of consideration does not invalidate an indorsement. Every person who transfers a certificate for value warrants: (1) the genuineness of the certificate; (2) his legal right to transfer it; and (3) the absence of any defect in the validity of the certificate so far as he has knowledge.

Orders to buy and to sell. Orders to buy and to sell stocks may be given in a number of different ways. We shall describe briefly some of the more important ones.

² Huebner, S. S., *The Stock Market* (New York: D. Appleton-Century Co., rev. ed., 1934), p. 272.

The simplest type of order is known as a market order. Here the buyer or the seller gives his broker an order to buy or to sell a definite number of shares of stock "at the market." On such an order, the broker buys or sells the stock immediately. In the interests of his customer, however, the broker must carry out the order at the best possible bid or offer on the market. With actively quoted stocks, a market order is generally, although not necessarily, executed close to the last sale previous to the entering of the order.

Another type of order carries with it a stated price. Thus an order may be given to a broker to purchase or to sell a certain number of shares of stock at a specified price. Such an order may be for a stated time or may be good until canceled. Where the price is specified, the broker works on the order as long as it is in force and attempts to get the specified price. He may buy the stock at a lower price, or he may sell it at a higher price, for such performance is in the interest of his client; but he may not execute it on terms less favorable than those specified.

Stop-loss orders are often given to protect a speculative position in stocks. Let us assume that a speculator has purchased 100 shares of Steel Common at 158 and wishes to limit his loss to 5 points. He may enter an order to "sell stop" at 153. The broker then acts only if and when the stock declines to 153, at which time he proceeds to execute the order at a price as near to 153 as possible. Similarly, when a speculator is operating on the short side of the market, he may enter an order to "buy stop" at a price somewhat above the current market price. Thus, assume that the individual in our example had sold 100 shares of Steel Common at 158 and desired to limit his loss to 5 points. He would then enter an order to buy stop at 163, and the broker would execute this order at the most favorable price possible after the stock reached 163.

Discretionary orders are blanket orders placed with the broker to buy or to sell stock whenever he considers the time advantageous. For obvious reasons, such orders are not customarily accepted by reputable brokers.

The period during which an order remains in force is specified when the order is given. An order may be "good for the day," "good for the week," or for any other specified time, or it may be good until canceled. It is customary for the market price to adjust automatically in order to allow for dividends. If

the quarterly dividend on a given stock is \$1 a share, the stock will usually sell ex-dividend on the following day \$1 lower than it did at the previous close. Thus, if a broker has an order to buy 100 shares of such a stock at \$50, he will lower this price to \$49 the day it sells ex-dividend and so notify his customer.

Selling short. When an individual sells stock which he does not own, he is said to "sell short." It may seem odd to sell something not owned, but it must be remembered that any speculative transaction—that is, a transaction in which the main consideration is enhancement of principal and not income—consists of two parts: a purchase and a sale. In a short sale, the time order is reversed as to the sale and the purchase. Thus A may go into a broker's office and enter an order to sell short 100 shares of Steel Common at the market. The broker proceeds to do this and, we shall assume, sells the stock at 150. It is necessary, however, for the broker to make an actual delivery of this stock to the purchaser before the close of business on the following day.³ A's broker, therefore, must borrow the stock from someone who has the stock to lend. There is a group of brokers on the exchange who specialize in lending stocks, for the consummation of short sales.

Loans of stock. When stock is lent in this way, the lender insists that the borrowing broker lend him an amount of money equal to the market value of the stock. If the stock is plentiful for lending purposes, the broker who lends the stock but borrows the money will be required to pay the current rate of interest on this loan. If, however, stock is scarce, then the rate of interest declines. For example, if the rate goes to zero, the lending rate is said to be "flat." In times of extreme scarcity, the broker who lends the stock may get the loan of money and a cash premium. That is, in addition to being favored with the loan at no interest, he may receive a cash premium from the borrower of the stock. The client who originally went short, however, has to pay this premium; furthermore, he is required to pay the amount of any dividends declared during the time he is short of the stock.

³ There are several different types of delivery. Where a cash sale is made, the stock must be delivered by the seller to the buyer on the day of the sale. Where sale is for regular delivery, such delivery must be made before the close of business on the following day. Stock may also be sold for 3-day delivery, or at the buyer's or the seller's option. In the latter transaction, such option is not for less than 40 days nor more than 60 days from the day of the contract.

Margin transactions. In cases where stock is sold short, as just described, the broker, of course, will require some protection against the possible inability of *A* to consummate the transaction. For example, let us assume that the price of U. S. Steel advances to \$200 a share before *A* "covers" (that is, buys in). If the broker had nothing in the way of security, he would stand to lose the difference between 150 and 200, plus any additional charges, such as dividends and commissions, if *A* went bankrupt during the interim. For this reason, the broker will require *A* to put up, not necessarily the entire value of the stock, but a margin equal, we shall say, to 25 per cent of its value. If *A* then goes bankrupt, the broker can use this margin deposit, plus the amount he originally received when he sold the stock, to purchase stock with which to pay back the 100 shares borrowed at the time of the sale. If *A* were required to put up a 25 per cent margin at the time of the sale, his requirements would have been \$37.50 a share, or \$3,750 in all. If the stock later advanced to a price of \$200 a share, the original margin requirement would be insufficient. The broker, therefore, would have required additional margin long before the stock had reached 200. If *A* had failed to meet this call, he would have been closed out. That is, when the stock had advanced, say, to 175, the broker would probably have called for more margin. Had this not been forthcoming, he would have purchased the stock and returned to the customer the amount due. Exclusive of commissions, interest, dividends, and transfer taxes, this amount would have equaled \$12.50 a share. On the other hand, if the stock had declined in price, the short seller could have completed his transaction by purchasing and could have made a profit thereby.

Stock may also be purchased on a margin. Let us assume that *A* wishes to purchase 100 shares of a stock selling at \$100 a share on a margin, instead of selling short as in the previous case. We shall also assume that the broker insists on at least a 50 per cent margin. This requirement would amount to \$5,000. The broker purchases the stock and lends *A* \$5,000 with which to carry the entire 100 shares. The broker, of course, holds *A*'s certificate and also charges him interest on the loan. *A*, however, is entitled to all dividends on the stock. Furthermore, if the price should rise to \$120 a share, *A* may sell and retain all of the \$20 a share profit; or, if the stock declines to 90, *A* likewise suffers the entire loss. The broker obtains the money that

he lends to A by borrowing at his bank on a time note or by borrowing in the call loan market "on call."⁴ The rate of interest charged by the broker to his customer will be higher than that which he is required to pay.

Margin requirements. Although the margin requirements of brokers have varied in the past, under the Securities Exchange Act of 1934 minimum margin requirements are placed under the authority of the Federal Reserve Board. They have been changed by the board from time to time in the light of market conditions. In general, they have been set much higher than before the act, running in the neighborhood of 50 per cent.

Use of securities as collateral for bank loans. In other cases, investors prefer to have the stock transferred to their name and to use it as collateral for a bank loan, rather than to operate on a margin basis. Banks will lend on the more active stocks but are bound by the margin requirements mentioned above. It is often possible for the investor to obtain in this way a rate of interest which is lower than that charged by a broker. Where the bank receives stock indorsed in blank, as collateral, no additional papers are necessary. Where the stock is in the name of the borrower, a power of attorney, properly made out, is given to the bank.

Purchase and sale of bonds; registered and coupon bonds. Bonds have the same negotiable character as stocks. Coupon bonds, however, differ from stocks in that they are payable to bearer; that is, title passes by delivery. Delivery of the bond thus constitutes full transfer. With registered bonds, however, the question of transfer is similar to that of stock. Registered bonds are payable only to the party whose name appears on the bond, and to effect the transfer of title, the bond must be properly indorsed and returned to the company, which then registers the bond in the name of the new owner. The inconvenience attached to registered bonds may cause them to sell at a price slightly lower than that at which coupon bonds sell, although this differential rarely exceeds one fourth of a point.

Payment of interest on coupon bonds is made upon presentation of the proper coupon. Similarly, the principal is paid upon presentation of the bond itself. The holder of a fully

⁴ Money borrowed on call must be paid back when demanded by the lender. Call loans are always secured, usually by the deposit of stocks and bonds. It is customary in the New York call loan market to renew call loans from day to day at the call loan rate for the day. Call money fluctuates from day to day in sympathy with the demand for and supply thereof.

registered bond receives both interest and principal in the form of a check. If the bond is registered as to principal only, then interest is paid upon presentation of coupons, while principal is paid to the registered holder by means of a check.

Accrued interest. Practically all bonds are quoted and sold "and interest."⁵ This expression means that, in order to arrive at the total cost of the bond, the accumulated interest must be added to the quoted price of the bond. This treatment is proper, since the owner of the bond is entitled to interest on his security so long as he holds it, whereas the new owner's interest should begin on the day of purchase. Regardless of the current rate of interest, or of the yield basis on which the bond is sold, it is customary to compute accrued interest on the basis of the coupon rate of interest that the bond bears.⁶

Commission on bond sales. Transactions in unlisted bonds are usually "net"; that is, the price includes all commissions. The reason for this practice is that unlisted bonds are usually bought and sold by houses that act as dealers rather than as agents or brokers. For bonds listed on the New York Stock Exchange, the following commission rates are charged:

<i>Price per \$1,000 of Par Value</i>	<i>Rate</i>
Selling at less than \$10	Not less than \$.75
Selling at \$10 and above but under \$100	Not less than \$1.25
Selling at \$100 and above	Not less than \$2.50

Such lower rates as may be agreed upon, ordinarily \$1.25 per \$1,000 bonds, may be charged for executing trades in bonds or notes having five years or less to run; and in securities to be redeemed within twelve months.

The New York Stock Exchange. No discussion of the subject of investment would be complete without some reference to the New York Stock Exchange. This organization occupies a position of unique importance in the field of finance, although nominally it is only an unincorporated association of brokers, limited to 1,375 members, formed to provide a place for trading in such securities as are accepted for listing.

Membership is termed a "seat," and gives the owner the privilege of transacting business on the floor of the exchange. The objects of the exchange are "to furnish exchange rooms and other facilities for the convenient transaction of their business

⁵ Bonds in default and income bonds are generally sold flat—that is, the quotation includes any accumulated interest.

⁶ The computations involved in determining accrued interest are discussed on p. 748.

by members, as brokers; to maintain high standards of commercial honor and integrity among its members; and to promote and inculcate just and equitable principles of trade and business."

Members may act as either brokers or traders, or both. In the capacity of brokers, they execute, for their clients, orders to buy or to sell securities on the floor of the exchange. As traders, they buy and sell securities on the floor of the exchange for their own account. The Securities and Exchange Commission is permitted to segregate and limit the functions of members, and has made a study and report on the question of the advisability of completely segregating the functions of dealer and broker. The matter is an unsettled one for the present.

We need not go into detail regarding the organization of the exchange. As a matter of practice, the Governing Committee is vested with absolute power over its members. This committee has power to suspend or to expel any member for violations of the constitution, or for unjust or inequitable conduct in connection with trading, or for any acts that may be detrimental to the exchange. The Governing Committee has always insisted on a high standard of business conduct, and members may be disciplined for offenses against the rules of the exchange, even if no civil statutes are violated.

The exchange, through its rules and constitution, aims to safeguard the interests of the public in dealings with members, and to hold members to the highest standards of business ethics. Contracts made on the floor of the exchange cannot be violated and must stand, unless both parties agree to a modification of terms.

The practices upon the exchanges are now also subject to the regulation of the Securities and Exchange Commission created by the act of 1934. The commission will have the power to penalize any unfair practices and manipulation that have been forbidden and in some cases punished by the exchange in the past. An independent and capably manned commission should, however, be able to police the situation with more effectiveness than was possible with other agencies. Moreover, because of its greater power of enforcement, it should be in a position to initiate improvements in practice.

Requirements for listing securities. Only stocks that are listed may be traded in on the exchange. When a corporation wishes to have its securities listed, it must make formal appli-

cation, which is passed upon by the committee on stock list. The listing fee for stocks is 0.5 cents per share, and for bonds, \$120 for each \$1,000,000, or fraction thereof, of par value. The minimum initial fee in any case is \$2,000. Upon making such formal application, the corporation is given three documents to be filled out: a list of requirements to be met; a distribution statement; and a questionnaire.

We shall not consider the rather technical details that are involved in these documents, nor shall we undertake an examination of all the requirements that must be met.⁷ In a general way, it may be said that complete information is required concerning the nature of the corporation, its product, its history, its management, its places of doing business, its capitalization, and so forth. The latest available balance sheet and income account of the corporation, together with a complete financial history, are likewise required. A statement of the purpose of the issue to be listed must be furnished, as well as copies of the corporation charter and by-laws, and certain legal papers certifying the legality of the issue about to be listed. The exchange likewise exercises strict supervision over the form and the manner in which all securities shall be engraved, and requires that all corporations making application for listing their securities agree to maintain a transfer office or agency in the Borough of Manhattan, City of New York, where all listed securities shall be directly transferable, and principal, interest, and dividends thereon payable. A registrar other than the transfer office or agency must likewise be maintained, where all listed securities shall be registered.

Once a portion of or all a corporation's securities are listed the exchange requires the corporation to publish at least once a year, fifteen days in advance of the annual stockholders' meeting, a statement of its physical and financial condition, an income account covering the previous fiscal year, and a balance sheet showing assets and liabilities at the end of the year. In addition, an annual income account and balance sheet of all constituent subsidiaries owned or controlled, or a consolidated income account and a balance sheet must be furnished. The exchange further requires that adequate notice be given of rights or sub-

⁷ A detailed discussion of listing requirements may be found in Meeker, J. E., *The Work of the Stock Exchange* (New York: The Ronald Press Co., rev. ed., 1930), p. 552 ff. See also Huebner, S. S., *The Stock Market* (New York: D. Appleton-Century Co., rev. ed., 1934), Chapter IX.

scription privileges, of actions regarding dividends, and of interest. In fact, adequate notice is required of all acts that affect the interests of the holders of the listed securities.

One of the essential functions of the exchange is to facilitate trading in securities. To this end, securities with a narrow or restricted market are not acceptable. And, similarly, "corners" are regarded as highly detrimental to free trading. Accordingly, when it appears that the distribution of a stock is such that it restricts trading unduly, it may be stricken from the list, or trading therein may be suspended.⁸

Generally speaking, the listing of a security gives it a wider market than it would otherwise enjoy. The fact that active trading takes place in most listed securities also makes it possible for the holder of such securities to obtain accurate information regarding the market value of his holdings from day to day. This information is made available through current quotations on actual sales. Listing is also a guaranty that the issue is bona fide, and has behind it a going concern. Likewise, the publicity that is assured the owners of listed securities is helpful. The fact that a wider market is usually available on listed securities, as well as complete data relative to their market price, adds to their collateral value. Banks accept pledged securities not as investments, but rather as assets to be disposed of if the loan is not repaid. The ease with which the collateral may be converted into cash, therefore, rather than its inherent investment value, is the governing consideration in determining how much will be lent on a given stock or bond. Besides these advantages, there is little difference between listed and unlisted securities. Mere listing of a security is no guaranty of value.

Ticker service recording sales of stocks and bonds. All transactions in stocks and bonds on the New York Stock Exchange are given immediate publicity by means of the ticker. There are, in fact, two services: a bond ticker and a stock ticker. Prices are immediately recorded on ticker machines and duplicated in brokerage offices throughout the United States. Prices recorded on the tape, as it is called, are records of actual transactions that occur on the exchange.

⁸Stock is said to be "cornered" when a large part of the floating supply is acquired by an individual or group who may thus control its price. Those who are short of a stock which is in this position are at the mercy of those who have cornered the stock, and must cover their sales at whatever price is asked. In the case of cornered stock the regular rules of delivery may be suspended.

Other exchanges. The New York Curb Exchange is an organization of lesser importance than the stock exchange, although it is somewhat similarly organized and functions in much the same way. Membership is limited, dues are payable, stock and bonds are listed, and buying and selling orders are executed, although the stocks there listed are often new issues, or issues that cannot meet the New York Stock Exchange listing requirements.⁹ Organized stock exchanges are also found in other cities, among the more important of which are the Chicago Stock Exchange, the Boston Stock Exchange, and the Philadelphia Stock Exchange. Trading on these exchanges, however, is dominated by the state of trading on the New York Exchange.

Functions of investment bankers. A wide distinction exists between the work of a stock exchange house, which does a strict brokerage or commission business, and that of the investment banker. The former operates strictly on a commission basis and will execute any order which is accompanied by proper assurances that the client can meet his obligations. A broker assumes no responsibility as to the outcome of his client's operations; he simply stands ready to execute orders.

The investment banker, on the other hand, is a merchandiser in securities. Although investment bankers may be classified as either wholesale or retail, depending upon whether they sell to dealers or directly to investors, their essential functions are generally similar and may be discussed under four headings: purchasing, selling, protective, and advisory.

Purchasing function. When a corporation desires funds for long-term financing, it approaches an investment banking house and states its requirements. Negotiations are then entered into which determine whether the banking house will purchase or reject the issue. New concerns often shop around with their proposition until they secure the most favorable terms; but once a connection is established, it is usually maintained. In this respect, the custom is different from that found in municipal financing, where the award is made to the highest bidder at a public sale. The practice of continuing relationships with one house has been a subject of criticism, particularly in the railroad field, on the grounds that competition between bankers for new issues would result in the company's receiving a better

⁹ But not necessarily so. Consider, for example, the former appearance of a number of the Standard Oil issues on the curb. Generally, however, securities traded in on the curb are less widely known.

price. As opposed to this argument, however, is the practical one that long-continued relations with a single banking house are desirable. Experience with successive issues familiarizes the banker with the affairs of the concern. As a result, he can more intelligently guide the corporation's financial policies. Likewise, in times of emergency, the banker feels a certain responsibility for those houses with which he has had continued relations.

Prior to the purchase of an issue, the banking house customarily makes an exhaustive investigation. The first step in this process is the preliminary investigation which covers only the financial statements and general history of the company. If this survey shows that the proposition is of real merit, then a more exhaustive examination is made of the plant and internal affairs of the corporation. At this stage, appraisers are engaged to determine the value of buildings, equipment, and inventories. Auditors are employed to check up on financial records and accounting practices. Engineers study production; other specialists study the marketing policies; and attorneys investigate franchises, leases, and contracts. Each specialist reports back the results of his investigation. The next step is a conference, at which the nature of the security, the interest rate, the maturity dates, and the purchase price are settled. Throughout the investigation, the banker considers the possibility of a resale to the investing public. In view of the narrow margin that generally exists between the purchase and the sale price of the better-grade issues, it is important for the banker to determine in advance the reaction of the public to the issue.

Selling function. Once an issue has been purchased and properly registered with the Securities and Exchange Commission, the next function is to distribute it to the investing public. With large issues, the originating firm will invite other houses to join in underwriting part of the entire amount. With smaller issues, the purchasing house undertakes the entire distribution, although it offers certain concessions to other dealers, who, in turn, retail to their clients the securities so purchased. After the issue has been purchased, the selling function is pursued vigorously by the investment banker. Descriptive circulars are prepared and mailed to a wide list of prospects; advertisements are inserted in financial publications; and customers are approached by the salesmen of the house.

To this end investment banking houses require salesmen of a

high order. Many houses develop and train their own bond salesmen. Recruits are carefully selected, often from the graduating classes of universities. During the early stages of training, these recruits are given various minor positions in the firm, and are assigned such duties as running errands, assisting in statistical and accounting work, and attending classes and lectures. Later, they will be assigned a list of prospects on which to call, possibly in the company of an older man. Finally, the initiates are put on their own feet. A nominal salary is usually paid during the preliminary period. Subsequently, remuneration may be entirely on a commission basis, or on a salary and commission basis.

Protective functions. The inability of the ordinary investor to discriminate between good and poor investments has placed a real responsibility on the investment banker. His most important function is to keep his clients out of poor securities. However, since no one is infallible, mistakes are bound to be made even by the best investment bankers. Some issues, regardless of how carefully they were originally investigated, turn out poorly. When an issue proves to be unsatisfactory, the originating house has a responsibility, even though it is not a legal one, and is expected to play a leading part in the organization of protective committees and in the work of reorganization. The originating house is likewise expected to maintain the offering price of an issue until it is fully distributed, and thereafter to create a market.¹⁰ This latter function is fulfilled by establishing a "bid and asked" price. The house agrees to buy at one price and to sell at another. There is a normal spread in active unlisted securities of from one half to one point. In inactive issues the spread will vary from one to ten points, and even more in exceptional cases. It is this spread that furnishes the banker with a profit on trading activities.

Advisory functions. The investment banker also undertakes to perform advisory services for his clients. Many houses offer the use of their statistical departments for the purpose of answering inquiries of clients. An attempt is often made to advise clients on the proper distribution of their holdings or on matters of taxation, to notify customers when bonds are called, and

¹⁰ It may be noted that pegging prices "in contravention of such rules and regulations as the Commission may prescribe as necessary or appropriate in the public interest or for the protection of investors" is forbidden by the Securities Exchange Act of 1934.

to advise when shifts should be made from one commitment to another. Some houses go so far as to maintain lists of customers' securities and to render periodic reports thereon.

Investment counsel. Increased recognition of the difficulty entailed in obtaining expert and disinterested advice from those who are in the business of selling securities has led to a marked increase in the number of independent investment counsellors in recent years. Such individuals or concerns have but one thing to sell—namely, investment advice. They have the advantage of being specialized experts who can make detailed studies both of specific securities and of the various external conditions that influence investment return. They can also give advice based upon the individual's peculiar personal situation. Such work is made possible by the fact that its cost and its benefits are spread over a large number of investment accounts.

The charges for investment counsel will usually consist of an initial fee and an annual commission during the life of the arrangement. The initial fee might be based upon the labor entailed in making the initial study of the portfolio held and the size of the account. It might range up to one per cent of the principal taken at market value. The annual charge would usually amount to from one quarter to one half of one per cent of the market value of the portfolio. The possible worth of such a service is evident, but its exact value is sometimes difficult to gauge. As in the case of the services of the doctor and the lawyer, the results may be achieved under either very adverse or very favorable circumstances, and in judging performance such circumstances should always be considered.

Under investment counsel, the investor generally retains custody of his securities and is the ultimate judge of whether recommendations shall be put into effect. Some banks and trust companies now offer a custodian service for small charge, which permits the speedier execution of any changes desired.

Most investment counsellors do not care to accept small accounts, because even a minimum of work and attention is likely to involve more expense for a service of high quality than can reasonably be collected in charges. The small investor is directed to such indirect forms of investment guidance as he can obtain by using the savings bank, the building and loan association, the various savings contracts of the life insurance company, and the Postal Savings System; or if he should choose equities rather than credit obligations, then the investment trust of the

mutual fund or management type may be suggested. Home ownership offers a commitment similar to common stock with respect to the influence of price level movements.

The Investment Companies Act brings investment advisers under the supervision of the Securities and Exchange Commission. They are obliged to register and furnish information at least annually. Compensation based upon a share of capital gains or appreciation is forbidden. Fraud or deceit is outlawed and the counsellor may not act as a principal or broker in dealings with his client. Control by the commission does not apply where (a) the clients are all within the state, and advice is not given about securities listed on national security exchanges; (b) where the only clients are investment companies and insurance companies; or (c) when the adviser has fewer than fifteen clients and does not hold himself out to the public as an investment adviser. The growing tendency is to develop professional standards of responsibility and ethics in the relation of the investment adviser and the individual investor.

Securities and Exchange Commission. Prior to 1933, protection of the investor by governmental devices, except the regulated public service industries, was largely confined to: (1) certain state blue-sky commissions, designed to force the publication of adequate information relative to new security issues and to prevent the unwary from buying "blue sky" as an investment; (2) prosecution for the fraudulent use of the mails to sell securities; and (3) such redress as might be obtained under the general laws against fraud. Recognition of the abuses in this field led to the Securities Act of 1933 and the Securities Exchange Act of 1934. Under the latter the Securities and Exchange Commission was created with five members appointed by the President of the United States to regulate: (1) new security issues of private corporations and foreign governments, and (2) the activities of the security exchanges in a manner that would protect the public interest. Under these acts all new securities, with minor exceptions, must be registered with the commission before they may be offered to investors. Fraudulent and misleading information is checked, securities of clearly bad character are barred, and severe penalties are provided for those who break the law. As a result of such registration, a huge amount of valuable information is available to statistical services and investment counsel, who would in any case be the most likely to use such material, although it is not readily available to the

individual of modest means (photostatic copies must be purchased).

The following are the commission's powers with respect to the security exchanges:

1. Exchanges are required to register and to agree to certain standards of practice.

2. Corporations listing their securities on these exchanges are required to make financial and other reports of an adequate sort as prescribed. In addition to a suitable balance sheet and income account, supporting schedules are called for to clarify important items, such as investment holdings, salaries and other compensation of officers and directors, and amount of aid changes in holdings of chief stockholders.

3. Manipulation of security prices is prohibited. While the new act gives the commission power to take vigorous measures against such manipulative practices, rules of the New York Stock Exchange and other stock exchanges forbade wash sales, transactions made to influence price, circulation of rumors, and the pegging or fixing of prices.

Other important steps are being taken by the commission. One of the most difficult steps is to undertake the regulation of activities of dealers and brokers in the over-the-counter market. Many substantial and reputable houses participate in this unorganized market where most of the bond trading, including that in United States Government obligations, takes place. However, here also are to be found small dealers and brokers of doubtful ethical standards, engaged in trading in securities which are little known and which are sometimes of uncertain reputation.

To meet the problem of the unregulated over-the-counter markets, the National Association of Security Dealers, Inc., was incorporated in September, 1936. This organization constitutes a self-regulatory body with the coöperation of the S.E.C. and the support of its disciplinary powers. The objective is to prevent unfair charges to customers, require disclosure of whether the customer is dealing with a broker or principal, see that quotation information published is satisfactory, and, in general, do away with the abuses that have existed in the over-the-counter markets of the past.

Other Federal attempts to protect the investor are seen in the Trust Indenture Act and the Investment Companies Act.

Although the Securities Act of 1933 aroused fears that security issues might be fatally impeded by the extremely severe penalties that threatened participants in the case of material errors, that feeling has apparently passed since the amendments made in the act of the succeeding year. There is a growing appreciation of the work of the commission in safeguarding the machinery of originating and marketing securities.

Sources of investment information. Two of the most important daily publications dealing strictly with investment news are the *Wall Street Journal* and the *Boston News Bureau*. In addition to complete market reports covering daily prices and sales of listed and unlisted securities, they also contain a very wide range of financial news. Current banking statistics, information regarding new issues, money rates, and similar data are included, together with frequent editorial comment. Political activities, in so far as they are related to finance, are reported. The Dow-Jones averages, which have reflected the movement of leading securities for a number of years, appear first in these publications. Of distinct value to the investor are the quarterly, semiannual, and annual reports of earnings of the more important corporations. Such reports are published in these papers immediately upon becoming available. Reports of the larger corporations are accompanied by excellent editorial analyses.

The *Boston News Bureau* is a morning and evening publication, and the *Wall Street Journal* appears in the morning only. The former publication, while it has much news of a national character, is more strictly devoted to affairs of the Boston markets. Similarly, the *Chicago Journal of Commerce*, while it gives general news coverage, is of particular interest for its mid-western financial news.

Of the more general newspapers the *New York Times* undoubtedly has the most comprehensive financial section. Its reporting service is excellent, and its editorial analyses are conservative and accurate. The *New York Sun* and the *New York Herald Tribune*, among other metropolitan dailies, offer detailed financial news.

Weekly publications. The *Commercial and Financial Chronicle*, commonly referred to as the *Chronicle*, is the most comprehensive exclusively financial organ. It would indeed be difficult to describe in detail the amazing scope of this publication. Practically all important business news and current financial statistics, including a very wide range of corporate reports, are given.

The publishers of the *Chronicle* put out several other publications, which were formerly sections of the *Chronicle*. The *Monthly Earnings Record* contains in cumulative form the monthly, quarterly, and half-yearly financial reports of railroads, utilities, industrials, and other companies. The monthly *Bank and Quotation Record* offers quotations on a very extensive range of listed and unlisted securities. The semiannual *State and Municipal Compendium* gives complete information regarding United States bonds, state debts and resources, debt limitations, savings banks laws, and municipal financial data, including resources, debts, and taxes. The *Railway and Industrial Compendium*, issued semiannually, contains the latest reports of earnings, descriptions of bond issues, dividend payments, maps of railroads, and other pertinent data. The *Public Utility Compendium*, also published semiannually, contains similar data for telephone and telegraph companies (United States and foreign) gas and water companies, and power, light, and railway companies.

The *Bond Buyer* appears both as a daily and a weekly paper, and it is invaluable for those interested in municipal issues. *Barron's*, a financial weekly, has articles on topics of general investment interest, and also material bearing upon the record and prospects of securities of all types. The *Financial World* (weekly), *Dun & Bradstreet Monthly Review*, *Investment Banking* (published by Investment Bankers Association at irregular intervals), and the *Magazine of Wall Street* (biweekly), all contain interesting information concerning investments.

Investment information services. Some of the commonly used investment information services are published by Standard Statistics Company, Moody's Investors Service, Poor's Publishing Company, Fitch Investors Service, Dun & Bradstreet, Inc., White & Kemble, and H. H. Copeland and Company. Each company, and the various services which it publishes, will be considered separately in the following paragraphs.

The Standard Statistics Company. This company furnishes a complete financial service. The *Standard Corporation Records* service now includes both stock and bond material. The service contains a card file for important companies. Less important companies are referred to in the *Standard Corporation Records*, which consists of loose-leaf files. For each company listed in the card file an annual report card and a current information card are included. The report card presents the current income ac-

count and balance sheet for the corporation, as well as reports for past years. In many cases a ten-year analysis is given. The bulletin contains the most recent available information and a résumé of the position and prospects of the company. Cards and corporation record sheets are kept up to date by means of daily news sheets. Information regarding unlisted and local securities and a daily and weekly dividend sheet are also included in the news section.

Other services furnished by the Standard Statistics Company include the *Trade and Securities Service*, the *Standard Facts and Forecasts*, the *Standard Service on Railways*, and the *Standard Bond Investment Service*. The *Trade and Securities Service* consists of: (1) business prospects; (2) special supplements; (3) earnings bulletin; (4) statistical bulletin; (5) sales; (6) credit prospects; and (7) analyses by industries. *Standard Facts and Forecasts* consists of a running analysis of the market, as well as up-to-date analyses of particular companies.

Moody's Investors Service. One of the older investment services, widely used by investors, is published by this company. The best-known part of the service consists of *Moody's Manual of Investments*, published annually in five volumes: "Governments and Municipals," "Industrials," "Public Utilities," "Railroads," and "Banks, Finance, and Insurance Companies." These volumes contain not only analyses of the financial statements of an extensive list of corporations and full information regarding the terms of their various securities, but also definite ratings on most bonds. The ratings extend from Aaa, which is the highest, to C, which is the lowest.¹¹ The system of ratings is explained in the first part of each volume. The various volumes are supplemented by a semiweekly service, which gives current financial news and reports appearing between annual publication dates.

In addition to the service just referred to, there is *Moody's Stock Survey* and *Bond Survey* (both weekly), which give opinions on security market trends, review individual issues, and make recommendations for purchases, sales, and exchanges. Other services include *Moody's Daily Call Service*, a complete record of called securities; and *Moody's Dividend Record*, a weekly cumulative feature. *Moody's Bond Record* is a semi-

¹¹ For a discussion of the merits of ratings, see Harold, Gilbert, *Bond Ratings as an Investment Guide*, (New York: Ronald Press Co., 1938).

monthly feature, covering a very substantial list of bonds, with ratings, essential statistical data, price quotations, and the location of their market. Moody's also offers investment counsel service to individuals, institutions, and estates.

*Poor's Publishing Company.*¹² The most widely-used service of this company, *Poor's Manual*, contains four sections: "Public Utility Section," "Industrial Section," "Railroad Section," and "Government and Municipal Section." The last volume includes banks and financial and miscellaneous companies. The volumes are published annually and contain excellent historical and financial reports of a wide range of securities, listed and unlisted.

Poor's Ratings likewise are published annually, but are supplemented by monthly reports. The order of rating is indicated by the following symbols: A***, A**, A*, A, B**, B*, B, C**, C*, C, and so on.

The *Daily Corporation News* service contains all kinds of reports and financial news that are cumulated and reprinted in alphabetical form each quarter year. Under each corporate name the news items are arranged chronologically. There are also two services, *Daily Called Bond and Sinking Fund Service* and *Dividend Service*, which are cumulated semimonthly. A weekly business and investment letter reviews the market and general business conditions relative to security prices, and gives Poor's daily financial comments on important news.

Poor's Investment Advisory Service is primarily concerned with stocks and with the general economic conditions that affect them. A portfolio of recommended stocks is followed and discussed in this section. The *Bond Advisory Service* performs a similar function for bonds and provides current information on three bond portfolios, of investment, of business man's investment, and of speculative, quality. Other publications are *Poor's Insurance Companies' Purchases and Sales*, which reports annually on the buying and selling activities of over eight hundred insurance companies and fraternal organizations; *Poor's Insurance Company Holdings by Securities*, which gives the names of those companies that own various securities; and *Poor's Register of Directors*, an annual directory of corporation directors.

¹² It is announced currently (1941) that Poor's and Standard Statistics Company are merging to form Standard & Poor's Corporation. It is reported that their publications will continue substantially unchanged.

The Fitch Publishing Company, Inc. The services published by this company include:

(1) *The Fitch Bond Book*, in which are contained statistical descriptions of railroad, public utility, industrial, real estate, Federal, and foreign government external bonds. Each bond is rated according to the Fitch system, which comprises four principal groups: A, B, C, D. Each group has three subdivisions, such as AAA, AA, A, indicating the position of the bond within the group.

(2) *The Fitch Statistical Service* consists of (a) *Corporation Manuals*, covering stocks and bonds and continuously revised, (b) *Daily News, Earnings and Descriptions*, (c) *Daily Dividend Section, Daily Redemption Section*, and (d) the *Trade Industry and Security Service*. Portions of the *Service* may be purchased separately.

(3) *The Fitch Individual Bulletin Services* covers individual companies and contains both factual material and an opinion of company outlook and of the investment merit of the securities. Both listed and unlisted securities are included.

(4) *The Fitch Weekly Bond Record* is a bond quotation feature, which presents not only recent price records but also brief statistical data. A review is also included giving recommendations, groupings of bonds by industries, defaulted bonds, interest prospects of weak issues, quotations for inactive issues, and special items of interest. Special reports are available on important individual bonds.

(5) Other services are the *Fitch Daily Market Reports* and the *Fitch Stock Record*. The *Fitch Supervisory Service* is a personalized counsel service to meet the individual requirements of private and institutional investors.

Dun & Bradstreet, Inc. This company is generally known for its commercial credit information service, but it also offers information on municipalities, either as individual reports or, more usually, as a service on one of the following bases:

1. Reports on any cities, counties, or states that come into the market with an issue in the amount of \$250,000 or over.

2. A selection of a varying number of reports based upon the needs of and the price the customer wishes to pay. Such reports are to be drawn from a list that includes cities with a population of 50,000 and over, counties with a population of 150,000 and over, the 40 borrowing states, and 10 special districts whose

bonds are widely held, a total of 300 governmental units. The reports on this list are covered twice a year.

3. Reports on a list of 85 New Jersey cities and counties. A similar service for the State of Pennsylvania, covering each year 162 borrowing units including cities, counties, townships, boroughs, school districts, and the state.

White & Kemble. The atlas published by this company, *White & Kemble Atlas and Digest of Railroad Mortgages*, contains a separate map for each of the more important American railroads, on which are shown the route of the railway and the various mortgage liens on the different sections of the road. Successive mortgages are indicated by colored symbols. Each mortgage is assigned a number on the map, and in the accompanying digest are given the principal features of the mortgage.

H. H. Copeland and Son. The *Copeland Freight Density Service* shows on a comparable basis the traffic support of the several bond issues of each important railroad. Traffic (freight tonnage) is reduced over each section of railroad to a "ton miles per dollar of funded debt" figure. Density maps are prepared from such figures for each road, which are supplemented by mortgage tables, statements of traffic interchanged, and other data.

Miscellaneous sources. In special fields of finance there are publications of a more restricted nature. Thus the *Mines Register* is a manual of the mining industry of the world, published at irregular intervals, the latest volume (XX) appearing in 1940.¹³ Statistics are given showing the production of principal metals, reports on individual companies, and a list of obsolete mining securities. *Best's Insurance Reports* contains excellent financial data on insurance companies. It is published annually in three parts: (1) "Life"; (2) "Casualty, Surety, and Miscellaneous"; (3) "Fire and Marine."¹⁴ The *Railway Age*, the *Transit Journal*, the *Iron Age*, the *Public Utilities Fortnightly*, and the *Electrical World* each contains valuable investment information for the industry represented. The *Annual Report of the Council of Foreign Bondholders*, issued by the Corporation of Foreign Bondholders, London, England, and the *Bulletins of the Institute of International Finance* of New York University contain excellent information concerning foreign issues.

¹³ Atlas Publishing Co., Inc., New York, N. Y.

¹⁴ Alfred M. Best Co., New York.

Effects of Taxation on Investment Policies

Method of approach. No text on investments would be complete without some reference to taxation as it is related to the investment problem. One has the choice here of several methods of approach. From a practical standpoint, the investor is interested in the effect of various taxes on the net yield of different types of securities, as well as the amount of trouble involved in paying taxes on the principal or income of the investment. The economist is interested essentially in the incidence of taxation and the economic effects thereof on production, consumption, and saving. The lawyer, on the other hand, is interested primarily in the legal aspects of taxation.

It will be impossible for us in the space that can properly be allotted here to discuss the question of taxation from all these viewpoints. Consequently, we shall attempt only a brief outline of the entire subject of taxation, with special reference to the problems that arise in the investor's practical work of making commitments and managing the investment.

Classification of taxes. From the standpoint of the investor, taxes may be classified in one of two ways: (1) on the basis of the taxing authority; (2) on the basis of the person who pays the tax. The taxing authority may be either a foreign government, the Federal Government, a state, or a local division of a state. The tax may be incurred by the investor himself, because of his ownership of a security or of property, or it may be incurred by a corporation or other entity that owns the property,

the income from which is the source of the investor's income.

Foreign taxes. Where income is derived from a foreign business or from foreign property, the country in which the business or property is located may tax the income. The subject is too complicated to be treated here at length. In the case of securities, the tax position of an investment ordinarily can be learned from the house through which the securities were issued. Generally, securities originating in foreign countries are brought out in such a way that foreign taxes will not be incurred by the American holder.¹ In view of current disturbed conditions the matter of taxation should be watched closely.

Federal taxes. Investors are interested in four forms of Federal taxes:

1. The income tax.
2. The estate tax.
3. The gift tax.
4. The stock transfer tax.

These taxes will be discussed briefly in the following pages.

State and local taxes. State taxes in which the investor, as such, is interested, include income taxes, inheritance and estate taxes, gift taxes, stock transfer taxes, and the general property tax.

Federal income tax. The Federal income tax is a progressive or graduated tax; that is, the tax becomes heavier as the taxpayer's income increases. Such graduation is based on the economic theory that one's ability to pay increases at a more rapid rate than one's income. The present Federal income tax dates back to the year 1913 and was made possible by the passage of the Sixteenth Amendment to the Federal Constitution, which gives the Federal Government the right to levy and to collect income taxes without reference to its apportionment among the different states on the basis of their population.

For the first few years during which the present series of in-

¹ In the case of Canadian securities, no Dominion tax is levied upon bonds payable in United States currency, even if the holder collects in Canadian currency. American holders of Canadian bonds (other than government issues) payable in Dominion currency, however, are subject to the Dominion income tax, which is deducted at the source. The only other foreign taxes imposed on American citizens owning Canadian securities are the succession duties of the various provinces. However, even the succession duty is not imposed in the case of securities of companies chartered under the Dominion law (as contrasted with those chartered under the laws of the provinces) where such securities are transferred in the United States. See Prentice-Hall *Inheritance and Transfer Tax Service*.

come taxes were in force, the rates of taxation were moderate and the effects on investment holdings—including even those of the receivers of large incomes—were not pronounced. As far back as 1913, however, we find the distinction made between normal taxes and surtaxes. With the entrance of America into the first World War, both normal rates and surtaxes were raised because of the greatly increased needs of the Government for more revenue. Although rates were reduced somewhat during the decade following the close of the war, they were never lowered to the level in effect prior to 1917. Furthermore, first as a result of the falling off of revenues caused by the second post-war depression, and then as a result of the national defense program inaugurated in 1940, rates were again substantially increased, beginning with the 1932 act, so that at present (1941) they are higher than they were at any time in the past.

Rates under the present act. The Internal Revenue Code (as amended by the Revenue Acts of 1939 and 1940 and the Second Revenue Act of 1940) imposes three separate taxes on the incomes of individuals:

1. The normal tax of 4 per cent on net income in excess of credits.

2. A surtax, graduated from 4 per cent to 75 per cent, on "surtax net income" over \$4,000. Surtax net income consists of net income less surtax credits.

3. A "defense tax," imposed for the years 1940 to 1944, inclusive, of 10 per cent of the sum of the normal tax and surtax, without regard to credits for foreign taxes or taxes withheld at the source. An exception, applicable only to very large incomes, provides that the defense tax may not exceed 10 per cent of the amount by which the net income exceeds the tax computed without regard to the defense tax.

Credits. The law allows the following credits to be deducted from net income before the tax is computed:

1. For purposes of the normal tax:

- (a) Personal exemptions of \$2,000 to married persons or heads of families, plus \$400 for each eligible dependent. Single persons and estates are allowed an exemption of \$800. A trust, in lieu of an exemption, is allowed a credit of \$100 against net income.

- (b) Interest on certain obligations of the United States, its

instrumentalities, and corporations created by act of Congress.

(c) A credit equivalent to 10 per cent of "earned income" or 10 per cent of net income, whichever is lower. Earned income consists of any compensation received for personal services which has been included in gross income, except that all income of less than \$3,000 a year, whether earned or not, is considered earned, and no income in excess of \$14,000 a year may be classed as earned.

2. For purposes of the surtax, only the personal exemptions and credit for dependents may be deducted from net income before the tax is computed.

Credits against net income should be distinguished from deductions. The former are allowed in order to impose the burden of the tax on the well-to-do; the latter are allowed in order to measure "net income," on which the tax is imposed.

The tax for married and unmarried persons with incomes of various amounts can quickly be determined from the table on page 786.

What income is taxed. In general, income is the gain derived from capital, from labor, or from both combined, including profits gained through a sale or through a conversion of capital assets.

All income of citizens or residents of the United States, irrespective of the source from which it is derived, is subject to tax. Income of nonresident aliens (that is, persons who are neither citizens nor residents) derived from sources within the United States is also subject to tax. To this general rule, however, there are certain exceptions. For example, the Federal Constitution, as interpreted by the courts, forbids the United States to impose any burden on the states or their instrumentalities. Under this rule, it has been considered that interest on bonds issued by the states and their municipalities is entirely exempt from the Federal income tax. However, some of the other limitations, formerly considered to be imposed by the Constitution, are being abandoned. Thus, in 1939 Congress imposed the Federal income tax on compensation of officers and employees of the states and their political subdivisions. Prior to that time, such a tax was widely considered unconstitutional, but the courts had begun to relax the rule, and Congress took advantage of this to impose the tax. A similar change may take place with respect to state and municipal bond interest.

Other statutory exclusions from income are: (1) proceeds of

life insurance paid because of the death of an insured person (but income from such proceeds is taxable); (2) an amount received as a gift, bequest, or devise; (3) to a limited extent, the proceeds of endowment and annuity contracts; (4) with certain exceptions, interest received on the obligations of the United States Government; and (5) compensation for injuries or sickness, whether received as damages or as insurance.

RATES AND AMOUNTS OF TAX ON INDIVIDUALS FOR TAXABLE YEARS BEGINNING AFTER DECEMBER 31, 1939

SINGLE PERSON Personal Exemption \$800				Net Income	MARRIED PERSON Personal Exemption \$2,000			
Normal Tax Rate %	Surtax Rate %	Normal Tax Plus Surtax Rate %	Total Tax ²		Total Tax ²	Normal Tax Plus Surtax Rate %	Surtax Rate %	Normal Tax Rate %
				\$800				
4		4	\$4.40	1,000				
4		4	44.00	2,000				
4		4	83.60	3,000				
4		4	123.20	4,000		\$30.80	4	4
4		8	171.60	5,000		70.40	4	4
4		8	253.20	6,000		110.00	4	4
4		10	343.20	7,000		140.80	4	4
4		10	448.80	8,000		233.20	8	4
4		12	558.80	9,000		422.40	8	4
4		12	688.40	10,000		528.00	10	4
4		14	818.40	11,000		666.60	12	4
4		14	968.00	12,000		783.20	12	4
4		16	1,122.00	13,000		932.80	14	4
4		16	1,263.60	14,000		1,082.40	14	4
4		19	1,476.20	15,000		1,258.40	16	4
4		19	1,685.20	16,000		1,434.40	16	4
4		22	1,900.80	17,000		1,643.40	19	4
4		22	2,142.80	18,000		1,852.40	19	4
4		25	2,361.40	19,000		2,064.40	22	4
4		25	2,666.40	20,000		2,336.40	22	4
4		31	4,252.80	25,000		3,843.40	31	4
4		34	6,063.20	30,000		5,614.40	34	4
4		37	8,006.80	35,000		7,517.40	37	4
4		40	10,080.40	40,000		9,552.40	37	4
4		44	12,289.20	45,000		11,752.40	40	4
4		44	14,709.20	50,000		14,128.40	44	4
4		48	19,954.00	60,000		19,320.40	48	4
4		51	25,537.60	70,000		24,864.40	51	4
4		54	31,451.20	80,000		30,738.40	54	4
4		57	37,694.80	90,000		36,942.40	57	4
4		60	44,268.40	100,000		43,476.40	60	4
4		62	78,350.80	150,000		77,532.40	62	4
4		64	112,890.80	200,000		112,190.80	64	4
4		66	147,676.40	250,000		146,863.60	66	4
4		68	183,162.00	300,000		182,427.60	68	4
4		70	256,147.60	400,000		256,391.60	70	4
4		72	330,933.20	500,000		330,165.60	72	4
4		74	522,418.80	750,000		521,619.80	74	4
4		76	718,404.40	1,000,000		717,583.80	76	4
4		77	1,511,397.20	2,000,000		1,510,665.80	77	4
4		78	3,917,390.00	5,000,000		3,916,547.80	78	4
4		79	over	over		over	over	over
4		75	5,000,000	5,000,000		79	75	4

¹ Computations are based on the maximum earned income of \$14,000; incomes of \$14,000 or less are treated as all earned.

² Includes defense tax.

Other exclusions from gross income arise from various provisions of the act. For example, distributions made by a trust, where the tax on such income has been paid by the trust, is not again subject to tax in the hands of the beneficiary. Likewise, the taxing act specifies that in certain instances income of one person is to be deemed that of another. Thus the tax on the income of a trust under which the grantor retains a right of revocation must be paid by the grantor, and not by the recipient of the income. Again, where a person assigns his right to remuneration for services to a third party, the assignor is taxed for the income in the same manner as though the assignment had not been executed.

In contrast with the exclusions from gross income are the deductions that may be taken in arriving at net income. Only the net income of a taxpayer is taxable. In general, the deductions consist of all items that may be classified as business, rather than personal, expenses. Interest, however, is deductible, with some minor exceptions, regardless of whether the debt upon which it is paid was incurred in a personal or a business capacity. Other important deductions include losses to the extent allowed by the statute, and taxes paid or accrued within the taxable year, except Federal income and profit taxes, income and profit taxes imposed by a foreign country, death duties and gift taxes, and such taxes assessed for local benefit as tend to increase the value of the property against which they are assessed.

Capital gains and losses. Investors are particularly interested in that part of the statute which refers to capital gains and losses, inasmuch as gains or losses on the sale or exchange of capital assets may materially change the amount of tax that would otherwise be due.

Capital assets include all property held by the taxpayer (whether or not connected with his business) except (1) stock in trade, or other property held primarily for sale to customers in the ordinary course of trade, and (2) property used in the taxpayer's business which is subject to depreciation for income tax purposes. For most investors, the rule means that shares of stock, bonds, and land are capital assets.

Capital assets are either "long-term assets" (property held for more than 18 months) or "short-term assets" (property held not more than 18 months). The extent to which capital gains are taxable and capital losses deductible is shown by the following table:

	<i>Short Term</i>	<i>Long Term</i>	
Period for which assets are held	18 months or less	18 to 24 months	More than 24 months
Percentage of gain or loss taken into account	100%	66⅔%	50%
Net Gain ¹	Taxed as other income	Taxed as other income ⁴	
Net Loss ²	Not deductible ³	Deductible from any income ⁵	

¹ "Net short-term capital gain" is excess of short-term gains over short-term losses. "Net long-term capital gain" is excess of long-term gains over long-term losses, after applying to each the percentages (66⅔% or 50%) applicable to the period held.

² Where losses exceed gains, the result, computed as in Note 1, is a "Net short-term capital loss" or a "Net long-term capital loss."

³ Although a net short-term capital loss is not deductible in the year sustained, it is allowable (in an amount not exceeding the net income of the taxable year) as a short-term capital loss (deductible from short-term capital gains) in the succeeding year.

⁴ Net long-term gain is taxed as other income where the surtax net income (including the net long-term capital gain) is \$14,000 or less. In other cases an "alternative method" may apply. This method has the effect of limiting the tax on the net long-term gain to 80%.

⁵ A net long-term capital loss can be used to offset other income entirely, so that no tax is payable. Such loss is taken as an ordinary deduction where the surtax net income (before deducting the loss) is \$14,000 or less. In other cases, the "alternative method" may apply. This method has the effect of limiting the reduction in tax to 30% of the loss.

In view of the significance, in the determination of the tax on a capital gain, of the length of time an asset has been held, it may be very important to distinguish between different certificates of the same issue of securities that were acquired at different times and at different prices. The general rule is that when shares of stock are sold from lots purchased at different dates or at different prices and the identity of the lots cannot be determined, the stock sold shall be charged against the earliest purchases of such stock. The inference is, of course, that if the stock can be identified, the taxpayer has the right to sell any shares that he chooses, and that the basis of such shares is to be used for determining gain or loss on the sale, regardless of the fact that he may retain other stock, which if sold, would result in a greater gain or a smaller loss.

The general rule stated above is known as the "first in, first out" rule. It may be applied either for or against the taxpayer. For example, if the first purchase of stock happens to be the one made at the highest price, and the taxpayer desires to realize the smallest gain or the greatest loss, it would be to his advantage to permit this rule to operate rather than to identify the particular stock sold. On the other hand, if the first purchase happened to be the one made at the lowest price, this rule would work to the taxpayer's disadvantage, and it would be advisable

for him to identify the particular stock sold as being that purchased at the highest price.

Where stock is registered in the taxpayer's name as purchased, identification consists of keeping a record of the number of each certificate representing a purchase on a certain date at a certain price, and of delivery, in making a sale, the certificate representing the cost which the taxpayer desires to use. For example, if a taxpayer has certificate #1, representing a purchase of 100 shares for \$5,000, and certificate #2, representing a purchase of 100 shares for \$6,000, gain or loss on a sale of 100 shares consummated through the delivery of the certificate #2 will be based on the cost of \$6,000.

Obviously, difficulty can ordinarily be avoided by keeping a careful record of shares (according to the date of purchase), and being sure to deliver the certificate which conforms to the taxpayer's intention.

Nontaxable exchanges. The statute provides that certain exchanges shall not be subject to taxation. Such exchanges include exchanges of: (1) property held for productive use or investment for property of a like kind; (2) stock for stock of the same class of the same corporation; (3) stock or securities for other stock or securities pursuant to a plan of reorganization, where the property received consists solely of stock or securities in a corporation which is a party to the reorganization; (4) property for stock or securities by a corporation in pursuance of a plan of reorganization, where the property received consists solely of stock or securities in another corporation, a party to the reorganization; (5) property for stock or securities of a corporation, where, immediately after the transfer, the transferor or transferors of the property are in control of the corporation, "control" being defined as an 80 per cent ownership; and (6) property in connection with an involuntary conversion. Where cash is received in addition to property, the gain, if any, may be recognized to the extent of the cash.

The term "reorganization" means: (1) a statutory merger or consolidation; or (2) the acquisition by one corporation, in exchange solely for all or part of its voting stock, of at least 80 per cent of the voting stock and at least 80 per cent of the total number of shares of all other classes of stock of another corporation, or of substantially all the properties of another corporation; or (3) a transfer by a corporation of all or part of its assets to another corporation if immediately after the transfer the trans-

feror or its stockholders or both are in control of the corporation to which the assets are transferred, "control," in this connection, meaning the ownership of stock possessing at least 80 per cent of the total voting power and at least 80 per cent of the total number of shares of all other classes of stock; or (4) a recapitalization; or (5) a mere change in identity, form, or place of organization, however effected.

Stock dividends and rights. A stock dividend is considered income, and consequently taxable, if it gives the stockholder an interest different from that which his former stockholdings represented. Thus a dividend of preferred stock on common stock would be considered taxable income, while a dividend of common on common of precisely the same character would be nontaxable. With a nontaxable stock dividend, however, the stockholder may be subject to tax on the gain resulting from the sale of his stockholdings, including the stock received as a dividend.

Stock rights, as well as stock dividends, may constitute taxable income. According to the weight of authority, all stock rights, except those given to a corporation's common stockholders to purchase more common stock, are taxable. Sale of nontaxable stock rights may result in a taxable gain.

Federal taxation of corporate incomes. For purposes of taxation, a corporation may be regarded as a mere "conduit" through which income passes to natural persons, or as a separate taxable entity. Despite the fact that the first view, which treats corporations as conduits and would render taxable only their undistributed net income, is admittedly the more just, the Federal Government, for fiscal and administrative reasons, has always treated corporations as persons, and taxed them accordingly. Since the corporate tax is several times as great as the individual normal tax, discrimination is shown against shareholders of corporations. Furthermore, persons who have moderate incomes consisting entirely of dividends are subjected to a further injustice, since their income is taxed before they receive it, not only at a higher rate than is imposed on income received from other sources, but also without the allowance of any exemptions to which they would be entitled if such dividends had been direct personal income.

Under the Internal Revenue Code, as amended by the two Acts of 1940 and the Excess Profits Tax Amendments of 1941, an ordinary domestic corporation is subjected to four different kinds of income taxes: the normal income tax, properly known simply

as the "corporation income tax", the capital stock tax, the declared value excess profits tax, and the excess profits tax. In addition, a "defense tax" of 10 per cent is in effect for the years 1940 to 1944, inclusive.

The normal tax is based on the net income of the corporation at rates shown in the following table:

INCOME TAX ON CORPORATIONS

	<i>Basis</i>	<i>Rate</i> ¹	
Normal tax on corporations with normal-tax net income of \$25,000 or less	Normal-tax net income	Up to \$5,000	14.85%
		\$5,000 to 20,000	\$742.50 plus 16.5% of amount over \$5,000
		\$20,000 to 25,000	\$3,217.50 plus 18.7% of amount over \$20,000
		\$25,000	\$4,152.50
Normal tax on corporations with normal-tax net income of \$25,000 to \$31,964.30	Normal-tax net income	\$25,000 to 31,964.30	\$4,152.50 plus 38.3% of amount over \$25,000
Normal tax on corporations with normal-tax net income of \$31,964.30 to \$38,565.89	Normal-tax net income	\$31,964.30 to 38,565.89	\$4,250 plus 36.9% of amount over \$25,000
Normal tax on corporations with normal-tax net income of more than \$38,565.89	Normal-tax net income	Over \$38,565.89	24%

¹ Includes defense tax.

The graduated corporate income tax has been attacked by practically all economists as an inequitable method of taxation. The size of the corporate income has no relation to its recipient's (the shareholder's) ability to pay. A large corporation is usually owned by many persons with small incomes; a small or moderate-sized corporation, on the other hand, may be owned by a single wealthy individual. A small close corporation may reduce taxes by disbursing substantial amounts as executive salaries, which would otherwise appear as corporate profits. Moreover, such a tax discriminates between corporations engaged in different lines

of endeavor, as well as between similar concerns located in different communities. For technological reasons, automobiles, for example, can be produced more efficiently by a giant concern, but a firm manufacturing men's clothing is probably most successful when it is small. Again, a great city daily must have an immense capital investment, while a newspaper situated in an agrarian community must be moderately capitalized if it is to prosper.

Another way the law discriminates against corporate owners of stock is in the provision whereby corporations are permitted to deduct only 85 per cent of the amount of dividends received from other taxable corporations.

In addition to the graduated tax on net income, corporations may be subject to the following related taxes:

1. A capital stock tax at the rate of \$1.10 for each \$1,000 of the "adjusted declared value" of the capital stock. This rate includes the 10% "defense tax" increase in effect for the year ending June 30, 1940 and for the four succeeding years ending June 30. The adjusted declared value is defined as any amount that the corporation deemed it advantageous to declare in its first return under the act, modified by subsequent bona fide changes in its capital structure.

2. A "declared value excess profits tax" (not to be confused with the excess profits tax described below), equivalent to 6 per cent of the corporate net income (as returned for the graduated net income tax, but less the amount of such tax) that is in excess of 10 per cent, although not in excess of 15 per cent, of the adjusted declared value of the capital stock as returned for purposes of the capital stock tax, in addition to 12 per cent of the corporate net income in excess of 15 per cent of such adjusted declared value. This tax is levied partly as a punitive measure to discourage the declaration of too low a value for purposes of the capital stock tax.

3. An excess profits tax, which may be levied on all corporations, except those specifically exempt, for taxable years beginning after December 31, 1939. The exemptions need not be considered here, as they are of little interest to the average investor.

Every corporation subject to the tax must compute its "excess profits net income" in accordance with the formula mentioned below for the computation of income under the "invested capital method," and if the result is greater than \$5,000 it must file an

excess profits tax return. In that case, most corporations have an option of paying the tax computed one of two ways, the "average earnings method" or the "invested capital method." The theory is that, if the earnings of a corporation for the taxable year are greater by more than \$5,000 than either the average earnings of the corporation from 1936 through 1939, or 8% of its invested capital, then it must pay an excess profits tax. The computation is not so simple as this would indicate, because the income during the taxable year and the income during the years 1936-1939 are both adjusted for the excess profits tax computation, and because the determination of "invested capital" is a difficult and intricate procedure.

The normal tax net income (i.e. the income upon which the normal corporation income tax is paid) for the taxable year is adjusted to produce the "excess profits net income." In general, the adjustments required to be made are intended to exclude extraordinary or unusual items of income, so that a corporation will not be required to pay an excess profits tax on anything except what is actually excess profit. The adjustments differ for the use of the two methods of computing the tax mentioned above, but there are many items of adjustment common to both. For example, the following items are deducted from the normal tax net income, regardless of which method of computation is used: income taxes paid to the Federal Government, recoveries of bad debts for which a deduction has been taken in a previous year, and refunds of taxes paid under the unconstitutional Agricultural Adjustment Act. Long-term capital gains and losses and gains from the sale of depreciable property held over 18 months are also excluded. This list of deductions and exclusions is not exhaustive, but will serve to illustrate the purpose of the adjustment of income.

To many corporations, the most important adjustment is that permitted under a provision of the law providing for a reduction of excess profits net income for *any* type of abnormal income which is properly attributable to past or future taxable years. Although there are technical and involved limitations to this right of reduction which cannot be considered here, the language of the law is very broad and will unquestionably cover many types of income.

Against this excess profits net income is applied a credit of either 95% of the average yearly earnings in the base period (1936-1939) or 8% of the invested capital. In either case, there

is an additional specific exemption of \$5,000. Further, any unused excess profits tax credits in one year may be carried over to the two succeeding years.

If the average earnings method is used, the income for each of the years in the base period must be adjusted in substantially the same way as the income for the taxable year is adjusted. The adjustments are not identical, but the purpose is the same: to apply, as the credit, 95 per cent of the yearly average ordinary, normal income for the period. If this method is used, there is a further credit of a percentage of capital added during the taxable year, or a deduction from the credit for capital reductions during the taxable year.

Just as there is provision for adjustment in case of abnormal income in the taxable year, there is provision for abnormalities during the base period years. Thus any abnormal deduction, subject to certain technical limitations, may be restored to the base period net income. The result, of course, is to increase the average for the period and, hence, the credit.

Further adjustments are permitted where the business engaged in during one or more of the base period years was different from the business engaged in at the beginning of 1940, or where normal operations during one or more years of the base period were interrupted or diminished by reason of abnormal events such as strikes, floods, or fires.

To prevent an inequitable burden upon corporations whose incomes were small at the beginning of the base period and increased rapidly during that period, there is provided a special method of computing the "average income" where the net income for the last half of the base period exceeds the net income for the first half of that period. This provision is particularly favorable to the rapidly growing corporation.

If the "invested capital method" is used, the invested capital must be computed according to the requirements of the law. It is the sum of "equity invested capital" plus one half the "borrowed capital." Equity invested capital is generally the sum of money and property paid in for stock or as contributions to capital, stock distributions when they represent earnings and profits made in prior years, and the accumulated earnings and profits at the beginning of the taxable year, less the sum of distributions not out of earnings and profits. "Borrowed capital," in most cases, is the principal amount of the corporation's

indebtedness evidenced by formal instruments, such as bonds and promissory notes.

The following summarizes the methods of computing the tax:

"AVERAGE EARNINGS METHOD"

Excess profits net income (normal-tax net income, adjusted)

less

95% of average base period (adjusted) net income, *plus*

8% of capital additions during the year, or *minus*

6% of capital reductions during the taxable year; and a

\$5,000 specific exemption

equals

the "adjusted excess profits net income", to which the rates, given below, are applied.

"INVESTED CAPITAL METHOD"

Excess profits net income (normal tax net income, adjusted, but not necessarily the same as the excess profits tax net income computed under the average earnings method)

less

8% of invested capital (as defined by the law), *plus*

\$5,000 specific exemption

equals

the "adjusted excess profits net income" to which the rates are applied.

The rates of the excess profits tax are as follows:

	<i>Adjusted Excess Profits Net Income</i>	<i>Rate of Tax</i>
First.....	\$20,000	25%
next.....	30,000	30%
".....	50,000	35%
".....	150,000	40%
".....	250,000	45%
over.....	500,000	50%

This very brief outline cannot attempt to cover all the intricacies of the excess profits law. There are many provisions in regard to reorganizations, special types of corporations, corporations which were not in existence during the years 1936-1939, or which had deficit years during that period, and innumerable other matters, which cannot be treated here.

4. A surtax on the adjusted net income of every corporation (other than a personal holding company) that is formed or employed for the purpose of preventing the imposition of the surtax upon shareholders through the medium of permitting gains and profits to accumulate instead of being divided or distributed.

This levy is 25% on the first \$100,000 of such income, and 35% of all over \$100,000. In addition, for the years 1940 to 1945, this tax is increased by 10% of its amount by the "defense tax." However, since the tax authorities must prove that a corporation has improperly accumulated surplus in order to impose this tax, it is levied in relatively few instances.

5. A surtax on personal holding companies² at the rate of 65% of the first \$2000, and 75% of all in excess of \$2,000 of a specially defined "undistributed income".³ In addition, a special "defense tax" of 10% of the tax computed at the above rates is imposed for the years 1940-1945.

The effect of income taxes on security yields. Bonds of state and local governments and obligations have, up to the present, been entirely exempt from the Federal income tax but, as suggested above, may be made taxable in the near future. Similarly, all obligations of the United States have been fully exempt, save for Treasury and Savings bonds held in excess of \$5,000 principal amount. Amounts in excess of \$5,000 were exempt from the normal tax. However, the Treasury issued some taxable obligations in late 1940 and all issues, including those of Government instrumentalities, brought out on or after March 1, 1941, have been made subject to all Federal income taxes by statute. The Public Debt Act of 1941 provides that both guaranteed and unguaranteed obligations of Federal Government instrumentalities and agencies issued on or after March 1, 1941, shall be subject to all Federal income taxes, save for two minor exceptions—certain obligations of the Federal Housing Administration and of the United States Maritime Commission.

* A personal holding company is defined as any corporation 80 per cent of the gross income of which is derived from royalties, dividends, interest, annuities, and gains from the sale of stock or securities; and more than 50 per cent in value of the outstanding stock of which is owned directly or indirectly by not more than five individuals. In computing the number of stockholders, however, all members of a family in a direct line, as well as the spouse, brothers, sisters, and partners are counted as one person.

Prior to 1934 personal holding companies had frequently been used by individuals to decrease their liability for Federal income taxes. An individual would form a corporation and acquire its stock in exchange for his personal income-producing property. The corporation would then pay a corporate tax on the income received, but no surtax would be paid by the individual if the income were not distributed. A saving in taxes was therefore possible. The tax on holding companies is a punitive measure to discourage the organization and maintenance of such corporations.

³ This "undistributed income" is defined at length by the law. Essentially, however, the term means the net income, plus dividends received from other corporations, less the ordinary Federal income tax, and less certain contributions and losses not deductible for purposes of the ordinary income tax.

The existence of securities the income from which is totally or partially exempt from income taxes may influence the investment policy of the investor with a large income. Let us consider the case of a married person whose taxable income is \$50,000. If he is to consider the purchase of non-tax-exempt bonds, the return from which will raise his present income to, say, \$55,000, the yield thereon will have to be sufficient to give a return equal to that on tax-exempt issues plus the amount of tax he will be required to pay. Otherwise, it would be more profitable for him to purchase tax-exempt securities. For example, where the investor is already receiving \$50,000 per year, the tax on an additional income of \$5,000 will be 48 per cent (4 per cent normal tax plus 44 per cent surtax). Consequently a 6 per cent fully taxable bond will net such an investor only 3.12 per cent after the payment of the Federal income tax; a 4 per cent United States Treasury bond (which is exempt only as to normal tax, except that a principal amount not in excess of \$5,000 is fully exempt) will net him 2.24 per cent; while a fully exempt security (such as a state or municipal bond) yielding 4 per cent will net him the full 4 per cent. The figure on page 798 shows comparative returns of taxable and non-taxable securities.

Some taxable bonds contain a so-called tax-free covenant wherein the debtor agrees to pay a certain portion of any tax levied upon the income of the instrument. Such payments are usually limited to a tax up to 2 per cent. When he collects such interest, the investor files an ownership certificate, which informs the debtor of the amount of tax to be paid, if any. Such amounts paid upon the investor's Federal income tax are collected directly by the Government on the basis of the declarations in the ownership certificates. When the investor makes out his tax return, he reports the interest as taxable income, but in computing his net tax liability he takes credit for these payments made in his behalf.

The effect of high income taxes on corporate dividend policies. Whenever the common stock is held by wealthy individuals who are in a position to influence dividend policy, the effect of heavy surtaxes upon the incomes of individuals is to encourage the reinvestment of corporate surpluses in the business rather than their distribution as dividends. This practice is based on the hope that taxes will be reduced and on the desire to delay ultimate payment until they are reduced. Such delay may take the form of either a simple accumulation of surplus or a capitali-

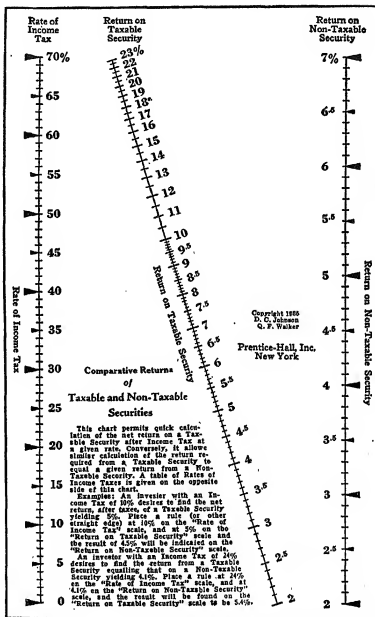


Figure 23—Comparative Returns of Taxable and Non-Taxable Securities.

zation of surplus by stock dividends and split-ups.⁴ It is true, of course, that a penalty for improper accumulation of surplus may be incurred (see page 795), but the taxpayer corporation runs little risk where some need for the accumulation of profits can be shown.

In the case of so-called personal holding companies, however, accumulation is no longer profitable because of the special surtax imposed on such corporations by the 1934 and 1935 acts (see page 796).

State income taxes. Over one half of the states and the District of Columbia impose an income tax upon both individuals and corporations. These states are:⁵

Alabama	Iowa	Missouri	South Carolina
Arizona	Kansas	Montana	South Dakota
Arkansas	Kentucky	New Mexico	Tennessee
California	Louisiana	New York	Utah
Colorado	Maryland	North Carolina	Vermont
Georgia	Massachusetts	North Dakota	Virginia
Idaho	Minnesota	Oklahoma	Wisconsin
Indiana	Mississippi	Oregon	

In addition, Delaware, New Hampshire, and West Virginia levy income taxes on individuals only, while Connecticut and Pennsylvania tax corporations but not individuals except when their incomes are business incomes derived from sole proprietorships or partnerships.

The laws of these various states differ somewhat in respect to the determination of net taxable income and rates of taxation. To consider in detail any of these laws is impossible here. In general, however, it may be stated that such laws are patterned after the Federal law, except that generally the rates are much lower than under the Federal tax. The same problems in reference to the yield of tax-exempt versus taxable securities are thus created in states with income taxes as are found under the Federal income tax. In such states, obligations and instrumentalities of the Federal Government, being entirely tax-exempt, enjoy a still further advantage over corporate issues that are taxable. Similarly, where issues of resident corporations or bonds of the state itself or municipalities therein are tax-exempt, a differential is created in their favor, and accordingly they enjoy a so-called

⁴ Stock dividends, as such, are not taxable; see page 790.

⁵ As of December 31, 1940. For more detailed and up-to-date information, see *Prentice-Hall State and Local Tax Service*, or *Prentice-Hall Tax Diary*.

special market as compared with securities issued outside the state.

Distinction between estate and inheritance taxes. Two kinds of taxes are commonly imposed on a decedent's property at death. These taxes are known as estate and inheritance taxes, although they are often referred to as death duties or succession taxes. An estate tax is levied on the entire property of the decedent, and theoretically is a tax "on the right of the decedent to transfer his property to the living." An inheritance tax, on the other hand, is levied on the individual shares of the decedent's beneficiaries, and is imposed "on the right of the beneficiary to receive the property of the dead." An estate or inheritance tax is not a tax on property, but is a tax on the transfer of property or on the right to transfer such property. Practically, of course, both estate and inheritance taxes are capital levies that must be paid out of accumulated property. This concept is particularly valid at a time like the present, when the rates of tax are so high as to make it impossible for an estate to pay more than a fraction of the death duties from income earned before distribution.

In the United States the inheritance tax form of succession duty has been generally applied by the states, while the Federal Government has enacted an estate tax. In recent years, however, many of the states have levied supplementary estate taxes, while a few states, notably New York, impose only an estate tax.

History of Federal estate tax. A small tax on legacies in the form of a stamp duty on the receipt thereof was effective in the United States between 1798 and 1802. Although succession taxes have been used by the Federal Government as war revenue measures, no such tax was used to finance either the War of 1812 or the Mexican War. The Civil War was financed partly by an inheritance tax; the Spanish-American War, by a tax that, in theory, was partly an estate tax and partly an inheritance tax. The present Federal estate tax is the successor of a tax imposed under the act of 1916.

The Federal estate tax. The present Federal estate tax is assessed under the Revenue Acts of 1926 and 1932 as last amended by the Revenue Act of 1940. Although legally two taxes are levied—an estate tax under the 1926 act and an *additional* estate tax under the 1932 act—for practical purposes the tax is that imposed by the 1932 act as amended by the 1940 act.⁶

⁶ The Federal estate tax law in force under the Revenue Act of 1926 provides that a credit shall be allowed for the amount of any estate, inheritance, legacy, or

A decedent's estate is taxable in full, not at the time a will is made but at the time the decedent dies, except that where the executor so elects, the estate may be valued as of a date one year after death. Ordinarily, therefore, investors are interested only in the current law and in the changes that are likely to be made in that law. As used for purposes of the tax law, the term "estate" has a meaning different from that employed in accounting terminology; the gross estate of a citizen or resident includes not only the full value of all property—real and personal, tangible and intangible—that he may own at the time of death, but also any other property in which he has an interest, or which he previously transferred in such a manner as not to be relieved from liability for the estate tax. Real estate situated in foreign countries, however, cannot be subjected to the tax. In the case of nonresident aliens, only property located within the United States (including stock of domestic corporations and securities of any corporation where the tangible evidence thereof is situated in the United States, but not including money deposited in domestic banks, unless the decedent was engaged in business in this country, or proceeds of life insurance received from domestic corporations) may be taxed, regardless of how it may be transferred.

The tax applies not only to property transferred by will or under the intestate laws, but also to transfers of an interest in dower or curtesy, an interest in a joint tenancy or an estate by the entirety; to a transfer made in contemplation of death or intended to take effect in possession or enjoyment at or after death; to transfers in trust or otherwise where the decedent retained any income or the right to designate the person who should receive the income, or where the enjoyment was subject at death to any change through the exercise by the decedent of a power to alter, amend, or revoke; to transfers arising from the exercise of

succession taxes actually paid to any state or territory, up to 80 per cent of the Federal estate tax. In order to provide for increased estate taxation and at the same time to leave intact the credit provision of the Federal estate tax provisions of the 1926 Act, the Revenue Act of 1932 merely amended certain sections of the Federal estate tax in force under the 1926 Act, and provided for an increase in estate taxation by the passage of the additional estate tax law. In effect, the additional estate tax increases the rates and, as amended by the 1935 Act, makes the tax applicable to all estates of residents in excess of \$40,000, instead of in excess of \$50,000, as under the 1934 and 1932 Acts, or of \$100,000, as under the 1926 Act. The 80 per cent credit for state death duties is allowed not as a percentage of the total tax, but only as a percentage of the tax as computed under the 1926 Act.

The Revenue Act of 1940 imposed a 10 per cent increase upon the tax as computed under the 1935 Act in estates where death occurred within the five-year period June 25, 1940—June 26, 1945.

a general power of appointment; and to transfers of life insurance proceeds payable to the decedent's estate, and of insurance in excess of \$40,000, payable to beneficiaries other than the estate.⁷

Tax on net estate. For purposes of the tax, the gross estate of citizens and residents of the United States is diminished by bona fide debts of the decedent; expenses of administration; attorney's fees; gifts for public, religious, charitable, literary, scientific, and educational purposes; a prorated amount of the value of any property included in the gross estate which, within five years of the date of the decedent's death, had been subjected to the Federal estate tax in the estate of another; and a specific exemption of \$40,000.⁸ The tax is imposed only upon the remainder, or net estate. In the case of nonresidents who are not citizens of the United States, the net estate is determined by subtracting the same items from the gross estate as was done in the case of residents and citizens, except that only a proportionate amount of the debts, expenses, and fees may be deducted, no specific exemption of \$40,000 may be taken, and only gifts to charities and eleemosynary institutions located within the United States are deductible.

Rates of Federal estate tax. As amended by the Revenue Act of 1935, the tax begins to operate at 2 per cent on the first \$10,000 of the net estate, increasing up to 70 per cent on amounts of the net estate that are in excess of \$50,000,000. The table on page 803 gives the rates of tax under the various acts passed since 1916. When death occurs within a period of five years after June 25, 1940 (the effective date of the Revenue Act of 1940), the tax is increased by 10%, due to the imposition of the "defense tax."

The Federal gift tax. A gift tax was first imposed in the United States by the Revenue Act of 1924, but this act was repealed in 1926. The present gift tax is imposed by the Revenue Act of 1932 as last amended by the Revenue Act of 1940.

⁷ Where several persons own the same piece of property and the survivors are to take the interest of a decedent owner, the estate is said to be a joint estate. Property held in this way by husband and wife is said to be held "by the entirety." If A gives property to B for B's life and permits C to nominate the person who shall receive it upon B's death, C is said to have a power of appointment over the property. If the property is in the United States, its transfer upon the death of B is taxable. For a complete discussion of all current problems respecting estate and inheritance taxes, see the Prentice-Hall *Inheritance and Transfer Tax Service*.

⁸ Under the Revenue Act of 1926, the specific exemption is \$100,000 instead of \$40,000. See footnote 6 on page 800.

TABLE FOR COMPUTING FEDERAL ESTATE TAX

STATUTORY NET ESTATE*	Exceeding	ESTATE TAX																	
		After Passage of Revenue Act of 1935 (approved Aug. 30, 1935)	After Passage of Revenue Act of 1934, May 11, 1934	After 5 p. m., June 6, 1932—Revenue Act of 1932	After 10:25 a. m., Feb. 26, 1926— Revenue Act of 1926, as changed by Re- venue Act of 1928	Total*	Rate %	Total	Rate %	From 6:53 p. m., Feb. 24, 1919, to 10:25 a. m., Feb. 26, 1926, Inclusive (Revenue Act of 1918, 1921, and 1921)	Total	Rate %	Oct. 4, 1917, to 6:55 p. m., Feb. 24, 1919, Inclusive (Revenue Act of 1917)	Total	Rate %	Mar. 3, 1917, to Oct. 3, 1917, In- clusive (amend- ment)	Total	Rate %	Sept. 9, 1916, to Mar. 2, 1917, Inclusive (Rev- enue Act of 1916)
\$10,000	2	\$200	\$100	\$100	\$100	1	\$100	1	\$100	2	\$200	1	\$200	1	\$150	1	\$150	1	\$100
20,000	4	400	200	200	200	1	200	1	200	2	400	1	400	1	300	1	300	1	200
30,000	6	600	300	300	300	1	300	1	300	2	600	1	600	1	450	1	450	1	300
40,000	8	800	400	400	400	1	400	1	400	2	800	1	800	1	600	1	600	1	400
50,000	10	1,000	500	500	500	1	500	1	500	2	1,000	1	1,000	1	750	1	750	1	500
60,000	12	1,200	600	600	600	2	600	2	600	2	1,200	1	1,200	1	900	1	900	1	600
70,000	14	1,400	700	700	700	2	700	2	700	2	1,400	1	1,400	1	1,050	1	1,050	1	700
80,000	16	1,600	800	800	800	2	800	2	800	2	1,600	1	1,600	1	1,200	1	1,200	1	800
90,000	18	1,800	900	900	900	2	900	2	900	2	1,800	1	1,800	1	1,350	1	1,350	1	900
100,000	20	2,000	1,000	1,000	1,000	3	1,000	3	1,000	2	2,000	1	2,000	1	1,500	1	1,500	1	1,000
110,000	22	2,200	1,100	1,100	1,100	3	1,100	3	1,100	2	2,200	1	2,200	1	1,650	1	1,650	1	1,100
120,000	24	2,400	1,200	1,200	1,200	3	1,200	3	1,200	2	2,400	1	2,400	1	1,800	1	1,800	1	1,200
130,000	26	2,600	1,300	1,300	1,300	3	1,300	3	1,300	2	2,600	1	2,600	1	1,950	1	1,950	1	1,300
140,000	28	2,800	1,400	1,400	1,400	4	1,400	4	1,400	2	2,800	1	2,800	1	2,100	1	2,100	1	1,400
150,000	30	3,000	1,500	1,500	1,500	4	1,500	4	1,500	2	3,000	1	3,000	1	2,250	1	2,250	1	1,500
160,000	32	3,200	1,600	1,600	1,600	4	1,600	4	1,600	2	3,200	1	3,200	1	2,400	1	2,400	1	1,600
170,000	34	3,400	1,700	1,700	1,700	4	1,700	4	1,700	2	3,400	1	3,400	1	2,550	1	2,550	1	1,700
180,000	36	3,600	1,800	1,800	1,800	5	1,800	5	1,800	2	3,600	1	3,600	1	2,700	1	2,700	1	1,800
190,000	38	3,800	1,900	1,900	1,900	5	1,900	5	1,900	2	3,800	1	3,800	1	2,850	1	2,850	1	1,900
200,000	40	4,000	2,000	2,000	2,000	6	2,000	6	2,000	2	4,000	1	4,000	1	3,000	1	3,000	1	2,000
210,000	42	4,200	2,100	2,100	2,100	6	2,100	6	2,100	2	4,200	1	4,200	1	3,150	1	3,150	1	2,100
220,000	44	4,400	2,200	2,200	2,200	6	2,200	6	2,200	2	4,400	1	4,400	1	3,300	1	3,300	1	2,200
230,000	46	4,600	2,300	2,300	2,300	6	2,300	6	2,300	2	4,600	1	4,600	1	3,450	1	3,450	1	2,300
240,000	48	4,800	2,400	2,400	2,400	7	2,400	7	2,400	2	4,800	1	4,800	1	3,600	1	3,600	1	2,400
250,000	50	5,000	2,500	2,500	2,500	7	2,500	7	2,500	2	5,000	1	5,000	1	3,750	1	3,750	1	2,500
260,000	52	5,200	2,600	2,600	2,600	7	2,600	7	2,600	2	5,200	1	5,200	1	3,900	1	3,900	1	2,600
270,000	54	5,400	2,700	2,700	2,700	8	2,700	8	2,700	2	5,400	1	5,400	1	4,050	1	4,050	1	2,700
280,000	56	5,600	2,800	2,800	2,800	8	2,800	8	2,800	2	5,600	1	5,600	1	4,200	1	4,200	1	2,800
290,000	58	5,800	2,900	2,900	2,900	8	2,900	8	2,900	2	5,800	1	5,800	1	4,350	1	4,350	1	2,900
300,000	60	6,000	3,000	3,000	3,000	9	3,000	9	3,000	2	6,000	1	6,000	1	4,500	1	4,500	1	3,000
310,000	62	6,200	3,100	3,100	3,100	9	3,100	9	3,100	2	6,200	1	6,200	1	4,650	1	4,650	1	3,100
320,000	64	6,400	3,200	3,200	3,200	9	3,200	9	3,200	2	6,400	1	6,400	1	4,800	1	4,800	1	3,200
330,000	66	6,600	3,300	3,300	3,300	10	3,300	10	3,300	2	6,600	1	6,600	1	4,950	1	4,950	1	3,300
340,000	68	6,800	3,400	3,400	3,400	10	3,400	10	3,400	2	6,800	1	6,800	1	5,100	1	5,100	1	3,400
350,000	70	7,000	3,500	3,500	3,500	10	3,500	10	3,500	2	7,000	1	7,000	1	5,250	1	5,250	1	3,500
360,000	72	7,200	3,600	3,600	3,600	11	3,600	11	3,600	2	7,200	1	7,200	1	5,400	1	5,400	1	3,600
370,000	74	7,400	3,700	3,700	3,700	11	3,700	11	3,700	2	7,400	1	7,400	1	5,550	1	5,550	1	3,700
380,000	76	7,600	3,800	3,800	3,800	11	3,800	11	3,800	2	7,600	1	7,600	1	5,700	1	5,700	1	3,800
390,000	78	7,800	3,900	3,900	3,900	12	3,900	12	3,900	2	7,800	1	7,800	1	5,850	1	5,850	1	3,900
400,000	80	8,000	4,000	4,000	4,000	12	4,000	12	4,000	2	8,000	1	8,000	1	6,000	1	6,000	1	4,000
410,000	82	8,200	4,100	4,100	4,100	12	4,100	12	4,100	2	8,200	1	8,200	1	6,150	1	6,150	1	4,100
420,000	84	8,400	4,200	4,200	4,200	13	4,200	13	4,200	2	8,400	1	8,400	1	6,300	1	6,300	1	4,200
430,000	86	8,600	4,300	4,300	4,300	13	4,300	13	4,300	2	8,600	1	8,600	1	6,450	1	6,450	1	4,300
440,000	88	8,800	4,400	4,400	4,400	13	4,400	13	4,400	2	8,800	1	8,800	1	6,600	1	6,600	1	4,400
450,000	90	9,000	4,500	4,500	4,500	14	4,500	14	4,500	2	9,000	1	9,000	1	6,750	1	6,750	1	4,500
460,000	92	9,200	4,600	4,600	4,600	14	4,600	14	4,600	2	9,200	1	9,200	1	6,900	1	6,900	1	4,600
470,000	94	9,400	4,700	4,700	4,700	14	4,700	14	4,700	2	9,400	1	9,400	1	7,050	1	7,050	1	4,700
480,000	96	9,600	4,800	4,800	4,800	15	4,800	15	4,800	2	9,600	1	9,600	1	7,200	1	7,200	1	4,800
490,000	98	9,800	4,900	4,900	4,900	15	4,900	15	4,900	2	9,800	1	9,800	1	7,350	1	7,350	1	4,900
500,000	100	10,000	5,000	5,000	5,000	16	5,000	16	5,000	2	10,000	1	10,000	1	7,500	1	7,500	1	5,000
510,000	102	10,200	5,100	5,100	5,100	16	5,100	16	5,100	2	10,200	1	10,200	1	7,650	1	7,650	1	5,100
520,000	104	10,400	5,200	5,200	5,200	16	5,200	16	5,200	2	10,400	1	10,400	1	7,800	1	7,800	1	5,200
530,000	106	10,600	5,300	5,300	5,300	17	5,300	17	5,300	2	10,600	1	10,600	1	7,950	1	7,950	1	5,300
540,000	108	10,800	5,400	5,400	5,400	17	5,400	17	5,400	2	10,800	1	10,800	1	8,100	1	8,100	1	5,400
550,000	110	11,000	5,500	5,500	5,500	17	5,500	17	5,500	2	11,000	1	11,000	1	8,250	1	8,250	1	5,500
560,000	112	11,200	5,600	5,600	5,600	18	5,600	18	5,600	2	11,200	1	11,200	1	8,400	1	8,400	1	5,600
570,000	114	11,400	5,700	5,700	5,700	18	5,700	18	5,700	2	11,400	1	11,400	1	8,550	1	8,550	1	5,700
580,000	116	11,600	5,800	5,800	5,800	18	5,800	18	5,800	2	11,600	1	11,600	1	8,700	1	8,700	1	5,800
590,000	118	11,800	5,900	5,900	5,900	19	5,900	19	5,900	2	11,800	1	11,800	1	8,850	1	8,850	1	5,900
600,000	120	12,000	6,000	6,000	6,000	19	6,000	19	6,000	2	12,000	1	12,000	1	9,000	1	9,000	1	6,000
610,000	122	12,200	6,100	6,100	6,100	20	6,100	20	6,100	2	12,200	1	12,200	1	9,150	1	9,150	1	6,100
620,000	124	12,400	6,200	6,200	6,200	20	6,200	20	6,200	2	12,400	1	12,400	1	9,300	1	9,300	1	6,200
630,000	126	12,600	6,300	6,300	6,300	20	6,300	20	6,300	2	12,600	1	12,600	1	9,450	1	9,450	1	6,300
640,000	128	12,800	6,400	6,400	6,400	21	6,400	21	6,400	2	12,800	1	12,800	1	9,600	1	9,600	1	6,400
650,000	130	13,000	6,500	6,500	6,500	21	6,500	21	6,500	2	13,000	1	13,000	1	9,750	1	9,750	1	6,500
660,000	132	13,200	6,600	6,600	6,600	21	6,600	21	6,600	2	13,200	1	13,200	1	9,900	1			

The Federal gift tax is a supplement to the estate tax, designed to discourage the making of gifts during life in order to avoid the payment of estate tax. The law imposes a tax which approaches (equivalent to about three fourths of) the amount of estate tax that would have been payable if the property given as a gift had constituted the donor's estate at his death.

Rates under the gift tax, as under the estate tax, are graduated. The rate of tax is measured by all taxable gifts made after June 7, 1932, the scheme of computation being adapted to tax gifts made over a period of years at approximately the same rate as though they had all been made within one year. The table on page 805 gives the rate of tax on gifts made in various years after the enactment of the law.

The gift tax applies to gifts made directly or indirectly by individuals, resident and nonresident, except that in the case of nonresident aliens only gifts of property situated within the United States are taxable. In general, any transfer made by a citizen or resident subsequent to June 7, 1932, which reduces the liability of the transferor for the estate tax is subject to the gift tax. All transactions whereby property rights or interests are donatively passed or conferred upon another, regardless of the means or device employed, constitute gifts subject to tax. However, only gifts in excess of \$4,000 are taxable, and if the donor makes more than one gift to more than one beneficiary during any calendar year, the sum of \$4,000 is deductible from the gross value of each gift in order to arrive at its taxable value.⁹ In addition, a specific exemption of \$40,000 may be deducted from the taxable value of all gifts made during the life of the donor. This \$40,000 exemption may be taken at any time, either in part or in full, provided that it is taken before any tax is paid; but once the full amount of \$40,000 is deducted, only the individual \$4,000 exemptions will be allowed thereafter. Gifts to charitable and eleemosynary institutions are also exempt from the tax.

State succession taxes. All the states of the Union, except Nevada, levy either inheritance or estate taxes, or both. The table on pages 806-807 gives the rates, exemptions, and nature of the various state death duties. All property within the jurisdiction of a state may be subjected to an inheritance or estate tax by such state. Real property and tangible personal property are

⁹ The Revenue Act of 1938 reduced this individual exemption from \$5,000 to \$4,000. Under the present statute the exemption does not apply to gifts in trust or of "future interests."

RATES OF TAX UNDER THE FEDERAL GIFT TAX

I Taxable Value	II Rate in 1932-34	III Tax in 1932-34	IV Rate in 1935	V Tax in 1935	VI Present Rate*	VII Present Tax*
\$10,000.....	3½%	\$75	3½%	\$75	1½%	\$150
20,000.....	1½	225	1½	225	3	450
30,000.....	2½	450	2½	450	4½	900
40,000.....	3	750	3	750	6	1,500
50,000.....	3¾	1,125	3¾	1,125	7½	2,250
70,000.....	5	2,125	5¼	2,175	9	4,050
100,000.....	5	3,625	6¼	4,200	10½	7,200
200,000.....	6½	10,125	9	13,200	12¾	19,950
400,000.....	8	26,125	12	37,200	15	49,950
600,000.....	9½	45,125	14¾	65,700	17¾	84,450
800,000.....	11	67,125	16¾	93,700	19½	123,450
1,000,000.....	12¾	92,125	18¾	136,200	21¾	166,950
1,500,000.....	14	162,125	21	241,200	24	286,950
2,000,000.....	15½	239,625	23¾	357,450	26¼	418,200
2,500,000.....	17	324,625	26½	484,950	28½	560,700
3,000,000.....	18½	417,125	27¾	623,700	30¾	714,450
3,500,000.....	20	517,125	30	773,700	33	879,450
4,000,000.....	21½	624,625	32¼	934,950	35¼	1,055,700
4,500,000.....	23	739,625	34½	1,107,450	37½	1,243,200
5,000,000.....	24¾	862,125	36	1,287,450	39¾	1,441,950
6,000,000.....	26	1,122,125	37½	1,662,450	42	1,861,950
7,000,000.....	27½	1,397,125	39	2,052,450	44¼	2,304,450
8,000,000.....	29	1,687,125	40½	2,457,450	45¾	2,761,950
9,000,000.....	30½	1,992,125	42	2,877,450	47¼	3,234,450
10,000,000.....	32	2,312,125	43½	3,312,450	48¾	3,721,950
20,000,000.....	33½	5,662,125	45	7,812,450	50¼	8,746,950
50,000,000.....	33½	15,712,125	45	21,312,450	51¾	24,271,950
Over						
50,000,000.....	33½	+	45	+	52½	+

Column I shows the aggregate taxable value of the gifts as reduced by the statutory deductions, including the following specific exemptions allowed residents and citizens of the United States:

For 1932-1935.....	\$30,000
For 1936 and Subsequent Years.....	40,000

Column II shows the rate of tax on the particular block under rates applicable on gifts made in 1934 and in preceding calendar years.

Column III shows the tax on gifts made in 1934 and in preceding calendar years.

Column IV shows the rate of tax on the particular block under rates applicable on gifts made in 1935.

Column V shows the tax on gifts made in 1935.

Column VI shows the rate of tax on the particular block under rates applicable on gifts made in 1936 and in subsequent calendar years.

Column VII shows the tax on gifts made in 1936 and in subsequent calendar years.

* On gifts made during the years 1940-1945, inclusive, the gift tax is increased 10% over the amount shown in these columns. For the calendar year 1940, however, the increase in effect applies only to gifts made after June 25, 1940 (the date of enactment of the Revenue Act of 1940). This is accomplished by prorating the 10% increase in the ratio which the total of gifts made after that date bears to the total amount of gifts made during the entire year.

taxable only by the state in which they are located. Intangible personal property, under a long line of decisions handed down by the United States Supreme Court, was formerly considered taxable only by the state in which the decedent had his domicile at the time of death. However, in 1939 the Supreme Court reversed

TABLE OF RATES, EXEMPTIONS, AND NATURE OF TAX (IN EFFECT ON OCTOBER 1, 1935)

Blanks in line opposite state names indicate *no tax*. *Under Estate Tax* column headed *Applicable*, *residents* means tax is applicable to residents only; *res. & n. r.* means tax is applicable to residents and nonresidents. Note that where the rate of the estate tax is indicated as *87% Fed.*, this means 80% of the Federal estate tax as imposed under the Revenue Act of 1926; the exemption under these taxes is limited to residents of the U. S.; the additional estate tax under the Revenue Act of 1932, as amended by the Revenue Acts of 1934 and 1935, is exclusively for the Federal Government. Moreover, the inheritance tax paid to the state (except West Virginia) is deductible from the estate tax imposed by the particular state.

States	INHERITANCE TAX			ESTATE TAX		
	Exemptions	Rates (Per Cent)	Applicable res. & n. r.	Exemptions	Rates (Per Cent)	
Alabama.....	.....	.....	.....	\$100,000	80% Fed.	
Alaska.....	\$100-10,000	1-17½	.....	.....	.....
Arizona.....	.....	.....	res. & n. r.	100,000	0.8-16	
Arkansas.....	0-6,000	1-40	.....	.....	.....
California.....	50-24,000	2-16	res. & n. r.	100,000	80% Fed.	
Colorado.....	0-20,000	2-16	residents	100,000	4/5-16	
Connecticut.....	500-10,000	2-13	residents	100,000	80% Fed.	
Delaware.....	0-20,000	1-8	residents	100,000	80% Fed.	
District of Columbia.....	1,000-5,000	1-15	res. & n. r.	100,000	80% Fed.	
Florida.....	.....	.....	residents { n. r.	100,000 none }	0.8-16	
Georgia (nonresidents).....	0	2	residents	100,000	80% Fed.	
Hawaii.....	500-5,000	1½-10	res. & n. r.	100,000	80% Fed.	
Idaho.....	0-10,000	2-30	.....	.....	.....
Illinois.....	100-20,000	2-30	.....	.....	.....
Indiana.....	100-15,000	1-20	residents	100,000	80% Fed.	
Iowa.....	0-40,000	1-15	res. & n. r.	100,000	4/5-16	
Kansas.....	0-75,000	½-15	res. & n. r.	100,000	80% Fed.	
Kentucky.....	0-10,000	2-16	res. & n. r.	100,000	80% Fed.	
Louisiana.....	500-5,000	2-10	res. & n. r.	100,000	80% Fed.	
Maine.....	500-10,000	2-16	res. & n. r.	100,000	80% Fed.	
Maryland.....	0	1-7½	residents	100,000	80% Fed.	

Massachusetts.....	1,000-10,000	1-12	res. & n. r.	100,000	80% Fed.
Michigan.....	0-30,000	2-15	residents	100,000	80% Fed.
Minnesota.....	100-10,000	1-60	residents	100,000	80% Fed.
Mississippi.....	.....	.....	res. & n. r.	50,000	0.8-16
Missouri.....	0-20,000	1-30	residents	100,000	80% Fed.
Montana.....	0-17,500	2-32	residents	100,000	80% Fed.
Nebraska.....	0-10,000	1-12	residents	100,000	80% Fed.
Nevada.....	.....	.....	.....	.....	.....
New Hampshire.....	0	8½	residents	100,000	80% Fed.
New Jersey.....	0-5,000	1-16	residents	100,000	80% Fed.
New Mexico.....	500-10,000	1-5	.....	.....	.....
New York.....	.....	.....	res. & n. r.	0-20,000	1-20
North Carolina.....	0-10,000	1-17	res. & n. r.	100,000	80% Fed.
North Dakota.....	.....	.....	res. & n. r.	0-20,000	2-23
Ohio.....	0-5,000	1-10	residents	100,000	80% Fed.
Oklahoma.....	.....	.....	res. & n. r.	{0-15,000	{1-10
Oregon.....	0-1,000	1-25	res. & n. r.	100,000	80% Fed.
Pennsylvania.....	0	2-10	res. & n. r.	10,000	1-15
Philippine Islands.....	0-23,000	1-75	res. & n. r.	100,000	80% Fed.
Puerto Rico.....	200-1,000	2-37½	res. & n. r.	250,000	1-10%
Rhode Island.....	1,000-10,000	1-11	res. & n. r.	{10,000	{1%
				{250,000	{1.4-14.92
				{100,000	{80% Fed.
South Carolina.....	200-10,000	1-14	res. & n. r.	100,000	80% Fed.
South Dakota.....	100-10,000	1-20	residents	100,000	80% Fed.
Tennessee.....	1,000-10,000	1-15	res. & n. r.	100,000	80% Fed.
Texas.....	500-25,000	1-20	res. & n. r.	10,000	3-10
Utah.....	.....	.....	residents	100,000	80% Fed.
Vermont.....	0-10,000	1-5	residents	100,000	80% Fed.
Virginia.....	1,000-5,000	1-15	residents	100,000	80% Fed.
Washington.....	0-10,000	1-25	residents	100,000	80% Fed.
West Virginia.....	0-15,000	3-30	res. & n. r.	100,000	80% Fed.
Wisconsin.....	100-15,000	2-40	.....	.....	.....
Wyoming.....	0-10,000	2-6	residents	100,000	80% Fed.

itself on this question and held that such property may be subjected to taxation by the state of the owner's domicile and by the state in which the property had acquired a "business situs."¹⁰ The full scope of these decisions is not yet clear. In effect, they mean that intangible property may be subjected to death taxes in more than one state. This might even mean that stock of corporations may be subjected to taxation by the state of incorporation as well as by the state in which the owner of the shares is domiciled. Further decisions from the Supreme Court will be required to settle the many questions which will arise in the application of the doctrine.

Many states, in order to attract capital of investors, refuse to take advantage of the power to levy a death tax on the intangible property of non-residents. This is accomplished in one of several ways:

- (1) by expressly excluding from the taxing status such property of non-residents;
- (2) by the enactment of "reciprocal exemption status" to the effect that the state will not tax the intangible property of a non-resident if the state of his domicile does not tax such property of non-residents; or
- (3) by an outright constitutional prohibition against taxation of intangibles of non-residents.

Intangible personal property includes bonds, notes, mortgages, stocks, and evidences of debt. A bank deposit is intangible property, but cash and currency located in a safe deposit box are tangible personal property.

State gift taxes. Eleven states, California, Colorado, Louisiana, Minnesota, North Carolina, Oklahoma, Oregon, Tennessee, Virginia, Washington, and Wisconsin at present impose a tax on transfers during life by gift. These laws are modeled after the inheritance tax laws of the respective states, except in the case of Oregon, which is modeled after the Federal law. In general, the classifications, rates, and exemptions are the same as under their respective inheritance tax laws with certain exceptions in the cases of Minnesota, North Carolina, Oregon, and Tennessee.

Reducing tax losses. Successful men keep their money well invested. When they die, relatively small amounts of cash are found in their estates. Usually the succession taxes are required

¹⁰ For decisions on which these statements are based, and comments relative thereto, see Prentice-Hall *Inheritance and Transfer Tax Service*.

to be paid within a year, and consequently there is a demand for cash to be obtained from the sale of securities. The baneful effects of this procedure have been pictured by Mr. Andrew Mellon, former Secretary of the Treasury:

It has become notorious in recent years, whenever a man of means dies, leaving his estate obligated to pay a large amount by way of taxes or debts, or both, that there is an immediate decline in all classes of securities in which he is known to be interested. And when the estate is required to make a sale of its property, there is not merely a large loss to the estate, but there is also a loss inflicted on everyone else interested in these properties, especially if at the same time they desire to, or must, sell.

A usual method of minimizing this difficulty, which is particularly effective where the estate does not reach into the highest tax brackets, is the use of life insurance. Rodman Wanamaker, for example, whose estate was estimated at \$75,000,000, was said to carry \$7,500,000 of insurance. Such insurance may be made payable either to the estate or to a trustee. If it is payable to a trustee, some saving in Federal estate and state inheritance taxes may be effected by establishing the trust for the benefit of named individuals and by giving the fiduciary discretionary power to acquire securities belonging to the estate. As the result of an arrangement of the latter type, the executor may secure sufficient cash to pay all estate liabilities, while the trust funds will be invested in securities that the decedent personally selected in the first instance.

Another provision which is desirable, especially for large estates where insurance becomes less effective simply because it too becomes a part of the taxable fund, is the creation of a liquid fund. When the estate does not include investments convertible into ready cash, the need for money to pay necessary expenses and taxes may result in the sale of property at sacrifice prices. Nonliquid real estate, mortgages, or security holdings which lack a ready market may shrink excessively in value when their sale is attempted in order to raise cash. Under the circumstances, liquidity becomes increasingly important as the rate of tax to which the estate is subject goes higher. Occasionally, good collateral value which will permit borrowing in order to raise cash may serve as a partial substitute for liquidity.

How succession taxes are calculated. Anyone who intends to engage in investing as a profession must know how to calculate succession taxes, and must become familiar with the use of an inheritance tax service that presents up-to-the-minute in-

formation.¹¹ Here we have space only for indicating in a general way the process of calculation. The Federal estate tax must be computed under both the Revenue Act of 1926 and the Revenue Act of 1932, as last amended by Revenue Act of 1940, in order to obtain the net tax due the Federal Government after deduction of the credit for taxes paid to the states. The process of calculation is as follows:

1. Determine the net estate subject to tax under the 1926 act. See page 802.

2. Apply the rates shown for the Revenue Act of 1926 to the net estate obtained in the first step. This gives the gross tax under that act. See page 803.

3. Deduct from the gross tax under the 1926 act (step 2) the sum of all inheritance and estate taxes actually paid to the states or territories; but if such state taxes exceed 80 per cent of the gross tax found in step 2, then deduct only 80 per cent of such gross tax. This step gives the net tax under the 1926 act.

4. Determine the net estate subject to the additional estate tax.

5. Apply the rates shown for the Revenue Act of 1935 to the net estate found in step 4. The result is the so-called tentative tax under the additional estate tax.

6. Deduct from the tentative tax (step 5) the gross tax under the 1926 act (step 2). The result is the additional estate tax imposed by the Revenue Act of 1932 as amended by the two succeeding acts.

7. Add to the additional estate tax (step 6) the net tax under the 1926 act (step 3). This step gives the total net Federal estate tax for which the estate is liable.

8. The Revenue Act of 1940 added a 10 per cent increase to the total tax in estates where death occurred after June 25, 1940, and before June 26, 1945.

Methods of calculating state succession duties vary from state to state, depending, in general, upon (1) whether the state tax is an inheritance tax, an estate tax, or a combination of both; (2) whether the exemptions, if any, are to be deducted from the first block of the taxable estate, or from the total estate; and (3) whether the decedent was a resident or a nonresident.

¹¹ See the Prentice-Hall *Inheritance and Transfer Tax Service*. The Service explains in detail how the taxes are computed and gives all the information necessary for the computation.

State estate taxes are computed in much the same manner as the Federal estate tax. To calculate a state inheritance tax, however, it is necessary to find the net share going to each beneficiary, to determine the relationship of the beneficiary to the decedent, and then to apply the prescribed rates of tax to the respective shares. For example, suppose that a decedent who was a resident of New Jersey left a net estate of \$450,000, consisting of real and tangible personal property located in New Jersey, and bonds and stocks of Pennsylvania and New York corporations. The decedent's estate was divided equally among his wife, a son, and a brother. Since the decedent was a resident of New Jersey, his stocks and bonds have a taxable situs in New Jersey. Accordingly, the New Jersey inheritance tax would be computed as follows:

TAX ON WIDOW'S SHARE OF \$150,000	
1% on \$45,000 (first block of \$50,000, less exemption of \$5,000).....	\$ 450.00
2% on Next \$50,000.....	1,000.00
3% on Next \$50,000.....	1,500.00
<hr/>	
Tax on Widow's Share.....	\$2,950.00
TAX ON SON'S SHARE OF \$150,000	
Same as for Widow.....	2,950.00
TAX ON BROTHER'S SHARE OF \$150,000	
First \$300,000 is Taxable in Full at 5%; therefore Tax is 5% of \$150,000, or.....	7,500.00
<hr/>	
Total Inheritance Tax Due New Jersey....	\$13,400.00

Some social consequences of inheritance taxation. Although this is not the place to discuss the economic and social effects and bases of inheritance taxation, a few observations may reasonably be made. Succession taxation tends to be either a means of producing revenue or a means of causing the social distribution of wealth. If revenue is the only object, the basis of the tax may be either the protection that wealth receives or the ability of persons to pay the tax. Either basis justifies a reasonable progression of rates relative to the amount of property transmitted or received. If, however, the rates applied to amounts in the higher brackets become too burdensome, the temptation to evade becomes very great, and some migration of wealth and persons may be expected from areas of high taxation to jurisdictions imposing little or no tax. Whether the existing combination of unprecedentedly high estate and income taxes will cause

wealthy men to migrate from the United States cannot yet be known, but it is certain that the high taxes imposed by some of the states have caused many individuals to establish their domicile in states where taxes are comparatively low. Some persons claim that high succession taxes tend to discourage the production of wealth and the growth of enterprise; the most that can be said on this point is that while reasonable grounds exist for such a belief, no statistical study has been made to support the theory. Undoubtedly, many men go on accumulating wealth "for the fun of the game."

The present high estate and income taxes represent an attempt on the part of the Federal Government to secure a wider distribution of wealth. The question of whether or not large aggregations of wealth should be broken up by heavy succession taxes in order to reduce the concentration of economic power in the hands of those who have not earned it is one of social policy. In the main, a decision will depend upon the relative strength, on the one hand, of the desire to avoid the dissipation of national savings by a tax on "capital," and, on the other hand, of the fear of concentration of wealth through an unlimited system of inheritance.

Security issue and transfer taxes. Practically all states require a corporation about to be organized to pay a tax in proportion to the capitalization. Except in Florida and South Carolina, no further tax is called for when the stock is issued. The United States, however, imposes a tax upon the issuance of stock.¹² These taxes ordinarily have little significance for the investor, although they are important to the corporation.

The Federal Government¹³ and the states of Florida, Massachusetts, New York, Pennsylvania, and South Carolina levy a tax¹⁴ upon the sale or transfer of stock. For this reason, it is

¹² The Federal Government and the states of Florida and South Carolina (and Pennsylvania, for the period from June 16, 1935, to June 16, 1941, only, although indefinite extension of this "Emergency" tax is likely) also tax original issues of bonds. For rates and regulations, see *Prentice-Hall Inheritance and Transfer Tax Service*, or *Prentice-Hall State and Local Tax Service*.

¹³ The Federal Government also taxes transfers of bonds at the rate of 5 cents per \$100 of face value.

¹⁴ Following are the rates of tax imposed by the various jurisdictions:

Federal Government. 4 cents per \$100 of face value, or on stock of no par value, 4 cents per share; if the selling price is \$20 per share or more, the rate is 5 cents instead of 4 cents. Under the existing law, after July 1, 1937, the rate in all instances is to be 2 cents.

Florida. 10 cents on each \$100 of face value; and on no par value stock, 10 cents per share.

important that the investor make all transfers, where possible, in a state that does not impose a transfer tax, and that he make no unnecessary transfers which may involve a tax. Under the Federal rules, for example:

"... where stock is transferred from the name of the decedent to the estate of the decedent, thus, From 'John Doe' to 'Estate of John Doe, deceased,'" the transfer is taxable, unless it is shown that, due to local law, the transfer is, in effect, to the executor or administrator, as such: but "where stock is transferred from the name of the decedent, to the executor of the decedent's estate, thus, From 'John Doe' to 'Richard Roe, Executor of the Estate of John Doe, deceased,'" the transfer is not taxable.¹⁵

General property taxes. The general property tax, in its broadest form, is assessed on all property, real, tangible, and intangible. Thus personal property is put on the same footing as real property, despite the fact that wide differences in earning power exist. Unquestionably the general property tax is one of the most unscientific of all taxes. Rates vary greatly between even contiguous communities; the amount of tax assessed on any person bears no relation either to his ability to pay or to the benefit that he receives from the Government. Furthermore, and not without good reason, the general property tax is admittedly ineffective because of the widespread concealment of intangibles. Let us suppose that the general property tax in a given locality is \$25 per thousand, a rate that is not unusual. At this rate a 5 per cent bond selling at par, if fully taxed, would yield only 2½ per cent. The rates generally imposed on real estate are in many cases confiscatory if applied to intangibles. The inequity does not apply so generally to the tax on real estate because the community comes to regard the tax as a regular part of the cost of operation and to adjust rentals accordingly.

Classified property taxes. A partial solution of this situation is attempted in some states by a so-called classified property tax. In such states property is divided into two classes, tangible (including realty) and intangible, and a higher rate of tax is imposed on tangibles than on intangibles. While the practical reason for

Massachusetts. 2 cents per \$100 of face value; and on no par value stock, 2 cents per share.

New York. 3 cents per share (whether par or no par stock); but if selling price is \$20 or more per share, 4 cents per share.

Pennsylvania. Same as Massachusetts.

South Carolina. 4 cents per \$100 of face value; and on no par value stock, 4 cents per share.

¹⁵ For the complete rules see the Prentice-Hall *Inheritance and Transfer Tax*

such a distinction lies in the fact that the low rate of tax is an inducement to declare the property for tax purposes, there is an economic reason as well. The taxation of tangible property in the state where it is located is not, *per se*, subject to criticism. However, where evidences of ownership in tangible property or equities therein are also taxed, unquestionably double taxation exists. On the theory that some additional government functions are required by the existence of complex evidences of ownership in tangible property, the addition of a low tax rate on such evidences, even though double taxation does result, may be justified. Among the states making such a distinction are Connecticut, Florida, Indiana, Kentucky, Minnesota, Nebraska, Ohio, Oklahoma, Pennsylvania, Rhode Island, and South Dakota. The Pennsylvania intangibles tax exemplifies this distinction. Under this tax tangible and real property are subject to the higher rates, varying with the community, whereas intangible personal property of residents, except such as is exempt, is taxed at the rate of \$8 per thousand.¹⁰

¹⁰ *Pennsylvania 8 Mills Tax.* The assembly of the state, in 1913, passed an act designed to provide revenue for counties through the assessment of an annual tax at the rate of 4 mills for each dollar of value on certain classes of personal property. The 1935 legislature amended the act of 1913 by imposing an additional tax of 1 mill (\$1 per thousand) for state purposes payable during 1936, and of 4 mills during 1937 and later years. The total intangibles tax, therefore, is now 8 mills. The tax applies, *inter alia*, to certain securities owned by residents of the State of Pennsylvania. Wherever possible, the State naturally goes to the source to collect this tax, but if it cannot be collected at the source, the act provides for payment by the owner of the security. The value at which securities should be reported for taxation is the market value, not the par value. No tax is assessed under this act upon bonds, notes, and the like, issued by the United States Government or by the State of Pennsylvania; or upon stock of corporations subject to the capital stock or franchise tax. In a comparatively few cases, the bonds issued by the counties, cities, boroughs, townships, school districts, or incorporated districts of Pennsylvania need not be reported for taxation under this act. In the case of bonds, notes, and other evidences of debt issued by a corporation of the State of Pennsylvania, the corporation pays the tax directly to the State. Certain corporations of other states, registered to do business in the State of Pennsylvania and actually doing business in that state, whose treasurers are residents of the state or perform the major portion of official duties in Pennsylvania, pay the tax directly and their securities are not taxed under this law, although required to be reported by the State and most county officials. Certain bonds issued by a Pennsylvania corporation under indentures which do not contain a clause providing that interest be paid without tax deduction are not taxed, since the amount of the tax is deducted from the interest payments. Residents of Pennsylvania who are taxable under this law are required to pay the 4 mills tax to the county and the 4 mills tax to the State on all stocks, bonds, notes, and the like, except such as are exempt.

In the case of states having a classified property tax, it is necessary for the investor to ascertain in detail the types of securities that are taxable and the types that are exempt. Obligations of the Federal Government and of the instrumen-

Some of the states which impose personal income taxes exempt intangibles from the general property tax. Among such states are California,¹⁷ Massachusetts, New York, Vermont, and Wisconsin.

In much the same way that some bonds contain a so-called tax-free covenant, whereby the issuing corporation agrees to pay the normal Federal income tax up to 2 or 4 per cent, other securities contain covenants in which the issuing company agrees to pay, under certain conditions, the intangible property tax to which reference has just been made on page 813. Such repayment is promised only when notice is given that the payment has been made by the investor, and then only when demand is made therefor on the company in due form.¹⁸

In the case of small investors, it is rarely necessary for companies making such agreements actually to make a refund, inasmuch as small investors often fail to return their intangibles for tax purposes, even in states where the 4 or 5 mill rate is in force. In many such states failure to make a return is not punishable, but in this event the individual will be required to pay a tax on whatever amount the tax officials wish to return for him. In many cases no return is ever filed.

The intangible property tax, however, has a definite effect on the investment policies of individuals who own more than a nominal amount of securities. Thus, in Rhode Island, State of Rhode Island bonds are exempt from this tax, as are instrumentalities of the Federal Government. Municipal and other issues may be taxed, however, regardless of whether or not they are located

talities thereof are always exempt. Usually the stocks and bonds of domestic corporations are exempt on the ground that they are already taxed. Securities of corporations located outside the state are usually taxable. Local municipal bonds and state bonds are usually exempt, although not necessarily so. In Rhode Island local municipal bonds are taxable. The obligations of other states and their municipalities may or may not be taxed.

For current information as to rates, laws, and regulations of administrative authorities, the investor should consult the Prentice-Hall *State and Local Tax Service* for the particular state involved. Inasmuch as tax laws are constantly being changed, a statement of the laws or rates in a work of this kind is of value chiefly for illustrative purposes.

¹⁷ In 1929 California adopted an intangibles tax in lieu of all other property taxes on such property. In 1935 this law was amended to provide that, after the adoption of a net income tax, such property (except solvent credits) should no longer be taxable. A net income tax was adopted by California later in the same year.

¹⁸ Indiana has attempted to overcome the difficulties inherent in a system which requires returns to be filed by enacting an intangibles privilege tax that must be paid by means of stamps affixed to the intangible. Any intangible that is not properly stamped or recorded cannot be enforced in the courts of Indiana.

within the state. Thus, a 4 per cent municipal bond, selling at par, will net only 3.6 per cent to the investor who makes a declaration. If State of Rhode Island bonds are selling on a basis higher than 3.60, they afford a better yield to such an individual than municipal issues selling to yield 4 per cent. Similarly, in the case of taxable corporation bonds, the investor, when making his selections, must compute the effect, not only of the Federal income tax, but also of the local property tax and the state income tax. The reader should note that this apparently small difference is actually important. A tax that reduces a yield from 4 to 3.60 per cent is the equivalent of an income tax of 10 per cent.

Situs of property for purposes of taxation. To be constitutional, a tax must be levied on property within the jurisdiction of the taxing power. It has long been recognized that real property is subject to the jurisdiction of and is taxable only by the state in which it is located.¹⁹ Likewise, a chattel real, such as a leasehold interest in real property, is taxable only by the state in which the real property is situated.

The problem of taxation of personal property is rendered exceedingly difficult by the diversity of practices and interpretations existing among the several states. Prior to 1930 it was possible for stocks and bonds to be declared the subject of taxation in two, three, or even four states at the same moment. Thus, one tax might have been imposed by the state of domicile of the owner; another by the state in which the corporation or debtor was domiciled; a third by the state in which the stock certificates or bonds were physically located; and a fourth by a jurisdiction in which they had become integral parts of a localized business. Then, in 1932, the United States Supreme Court declared²⁰ that intangibles are taxable only in the state of the owner's domicile. This was the accepted doctrine until 1939, when other decisions of the Court, relating to death taxes, and discussed on page 805, cast doubt on the doctrine of the earlier cases. The entire question is, therefore, now undecided and confusing.

A decision of the United States Supreme Court established the principle that tangible personal property is subject to tax by one state only—the state wherein it is actually, definitely, located.²⁰ Ordinarily tangible property is deemed to be definitely located

¹⁹ *First National Bank of Boston v. Maine*, (1932) 284 U. S. 312.

²⁰ *Frick v. Pennsylvania*, (1925) 268 U. S. 473.

within the state in which it is found, unless it is in the course of being transported to another state. If the location of tangible property in a state is merely transient, transitory, or temporary, and the owner has a definite intention of moving such property to another location, the property would probably be taxable by the state of domicile of the owner, and not by the state in which it was temporarily situated.²¹

In summation, it may therefore be stated that:

1. Real and tangible personal property may be subjected to a tax only by the state in which they are actually located.

2. Intangible personal property may be taxed by the state of residence of the owner, and possibly by the state where it has attained a business situs in such other state.

Conclusion. Detailed consideration of the economic effects of our various systems of taxation is hardly a subject for the present work. The entire problem of taxation is an intricate one and properly belongs to a study of public finance. We have attempted to treat here only the more important relations of taxation to the subject of investment.

From the standpoint of the investor, the most important levies are the Federal income tax, the Federal estate tax, the Federal gift tax, the state income taxes, and the state inheritance taxes. The income taxes have an important bearing on the relative yields of various forms of securities, while the death duties and gift taxes greatly restrict the amount of property that one individual can give to another.

As to the future course of taxation, one can hazard only a rough guess. The huge increase in governmental debt during the depression of the 1930's, the new emphasis given by the Roosevelt administration to taxation as a means of securing a wider distribution of wealth, and the tremendous cost of the national defense program inaugurated in 1940, would indicate that it is more likely that rates are to be increased than reduced. (As this book goes to press, hearings are being held in Washington for the purpose of making further major increases in all sorts of Federal taxes.) An investment policy, particularly in the case of large funds, should give proper consideration to taxation in order to avoid excessive burdens not required by the law.

²¹ *Trust Company v. Schnader*, (1934) 291 U. S. 24.

Business Conditions and Security Price Movements

Daily price fluctuations. The first impression that one obtains as he approaches the practical field of investment is that price movements are uncoordinated and illogical. In so far as the welter of daily or hourly fluctuations is concerned, this impression is justified. An hour or a day spent in the trading or board room of any brokerage house, where the actual prices of listed securities are recorded immediately after each transaction, is interesting but not particularly instructive. The prices of some securities will be seen to advance, while those of others decline, depending upon the immediate temper of the market. Reversals occur almost at the same point of time. Trading shifts from one group of securities to another. Nor is the net result of a given day's trading of much greater significance. It is true that, by reading the financial page of any of the larger metropolitan dailies, one gets a somewhat more orderly account of the day's trading. Here will be given the high, the low, and the final prices of all listed securities and some of the more active unlisted ones, as well as the net changes in price as compared with the closing prices for the previous day. In addition to prices for individual securities, the more important papers publish daily averages that show the average movement in selected groups of securities. Most of these averages are so arranged as to show the daily movement of industrial stocks, railroad stocks, utility stocks, and high-grade bonds.¹ An isolated study of these

¹ The *New York Times* publishes daily the average movement of 25 industrials, 25 rails, and 50 stocks combined, as well as one average for bond prices. The *Wall*

averages is also more or less confusing, in that advances and declines will be registered in respect to daily price changes, quite irrespective of the broader movements that may be in evidence at any given time.

Minor and major cyclical movements. When the daily price movements are charted over a period of years, however, two kinds of longer-term movements are evident. First, minor waves which last for a few days or weeks and which, like the daily movements, are often difficult to explain, but sometimes appear as a response to current business events of fleeting significance, such as a strike, the passage of a piece of unfavorable legislation, the announcement of a dividend change by an important corporation, or some other bit of favorable or unfavorable news. Examination of these minor, or secondary, swings will show them as parts of a longer-term trend lasting over a period of months, or even years. These latter major, or primary, trends are closely identified with general business conditions, although they are not necessarily corresponding at every point. Market students identify the major rising movements as primary bull markets, and the falling ones, as primary bear markets.²

Secular trends. A complete cycle in security prices may be said to comprise two movements, the one upward and the other downward, although at the end of the completed cycle it is by no means true that prices are brought back to exactly the same level from which they started. In fact, still a fourth movement, known as the "secular trend," is often present in security prices, as well as in other economic phenomena. The existence of such a movement is often discernible in the case of bond prices, as well as in the prices of various groups of stocks. The direction of this trend is generally determined by fundamental economic changes that are basically related to longer-term movements of gold in circulation, commodity price movements, interest rates, and population growth.

Absence of seasonal movements in security prices. Contrary to popular belief, there is no pronounced seasonal movement in security prices. The reason is not hard to find. If investors and

Street Journal publishes the Dow-Jones averages, which are based on the movements of 30 industrials, 20 rails, 20 public utilities, and 40 bonds. The Standard Statistics Company publishes daily averages for industrials and railroad stocks.

²For a brief description of the three types of market movements, excluding the long-term secular trend as a possible fourth type, see Dice, C. A., *The Stock Market* (New York: McGraw-Hill Book Co., 1926), Chapter XXIV. A fuller account is given by Rhea, Robert, *The Dow Theory* (New York: Barron's, 1932).

speculators considered that stock prices always advanced, or were likely to advance, during any particular month, they would certainly anticipate such a rise by buying before it was scheduled. This very action on the part of buyers would advance the market before the time for the seasonal advance was predicted to occur. Similarly, if stocks were destined to move downward at specified times of the year, a selling movement would anticipate the seasonal decline and hence upset all calculations. The movement of the prices of stocks and bonds is dependent on basic changes in economic and business conditions and not on the passage of the seasons.

Individual and general price movements. Differences in prices or yields at any given time are generally explainable in terms of such differences in investment quality and characteristics as have been outlined in this and other books on investments. But if attention is shifted to such differences in price and yields as take place from one period to another, the character of the individual security becomes less important as an explanation than those general business conditions which are changing attitudes in the money market and in the business community. One might state the problem of investment as threefold: (1) to select investments of suitable quality; (2) to favor those industries which are in the strongest position; and (3) to invest, insofar as possible, at times when conditions are favorable. Potential gains from and practical limitations upon the timing of investments will be discussed in the course of this chapter. Before we turn to a study of the general business factors, it is interesting to note that the improved data available on various lines of business permit a much readier comparison than was formerly possible. With a wealth of material from income accounts, comparative profit performance can be analyzed. In addition, composite stock prices for the different industries can be compared in order to ascertain which industries are making the best relative performance.³

³ For this purpose the Standard Statistics Company's weekly stock price indexes are very useful. Group indexes are given for rails, utilities, banks, fire insurance companies, and industrials; indexes are also given for industrial sub-groups, such as agricultural machinery, chemicals, electrical equipment, and others. For charts see *Trade and Securities Service*, *Basic Statistics*, charts, Standard Statistics Company, May 29, 1936.

Rose, in his Appendix II, "Divergent Trends of Different Industries," presents 54 charts based on the Standard Statistics Company's indexes for the years 1918-1933. By using the initial ratio of a given group of stock prices to all stock prices as bases, the subsequent relative market price performance is shown. This rela-

Despite the peculiarities of each individual company, the movements of all stocks show a very strong tendency to rise and fall together. This uniformity is graphically stated in Figure 24. The diagram accompanying the price curve was constructed as follows: the price movements of each year were tabulated so as to show in which month each stock reached its highest quotation and in which month it reached its lowest. If any one year had shown such a degree of uniformity of movement that all the issues had recorded their highest prices in one of the twelve months

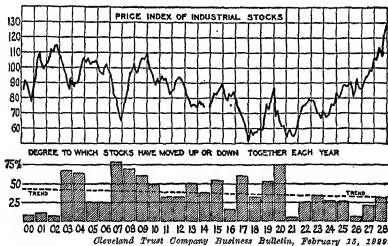


Figure 24—Industrial Stock Prices and Degree to Which Stocks Have Moved Up and Down Together Each Year.

and all had reached their lowest prices in another single month, the result would have been considered to constitute 100 per cent uniformity. Such uniformity, however, was not shown in any year, although more than 78 per cent was shown in the panic year 1907 and nearly 75 per cent in 1920, a year of extreme decline in commodity prices. It is interesting to note that prices of stocks tend to move in unison to a much greater degree during periods of declining prices than during periods of rising prices. The diagram also reveals a slight tendency for stocks to show less uniformity in the later than in the earlier years. As the number of companies with securities listed on the New York Stock Exchange has grown, smaller companies that are less representative of na-

tive trend is charted on a semi-logarithmic, or ratio, scale. See Ross, D. C., *The Practical Application of Investment Management* (New York: Harper & Bros., 1933).

tional conditions, more often devoted to the production of specialties, and more affected by changes in management, have probably been responsible for the greater diversity of price movements.

Price-determining factors. In a study of price movements the three chief price-determining factors for investments of all kinds must be kept in mind: (1) the general market rate of interest for loans of negligible risk; (2) the degree of risk or uncertainty; and (3) the estimated size and timing of the expected future income stream.⁴ In the case of high-grade bonds and the choicest preferred stocks, the uncertainty is small, and the expected future income fixed, so that price fluctuations are almost entirely the result of changes in interest rates. Sometimes changes in bond prices are said to *cause* yield changes, but it is more accurate to regard the latter as the cause and the former as the effect. Bonds will tend to sell at prices that will give the buyer yields in line with other similar available commitments. Bonds and preferred stocks of second-grade or lower quality are distinguished chiefly by the greater uncertainty of their future, not as to the amount of their claim but as to the probability of its payment. Uncertainty is something which exists only in the minds of investors, and consequently it is not surprising to find that when times are good and optimism general, the yield difference among the various qualities of bonds is small as compared with that in periods of depression and pessimism.⁵

But if yields fluctuate more at such times, so also will prices. For this reason the purchaser of the better-grade issue not only reduces the possibility of default in interest but also reduces the likelihood of loss of principal in the event of resale to recover the same.⁶

⁴Other price-determining factors that are usually constant for a given investment, and consequently are ignored in this discussion, are marketability, tax status, freedom from care, and legality for those investors who, like trustees, are restricted in their choice by law. The varying influence of maturity is itself related to interest rate variations and therefore is discussed immediately below.

⁵The tendency of bonds to diverge as conditions become worse and converge as conditions improve may be seen in a chart comparing the market movements of four groups of bonds, rated Aaa, Aa, A, and Baa, respectively, from 1919 to 1939. *Moody's Manual of Investments Industrials*, 1939, p. a35.

⁶Thus, the approximate fluctuations of the bonds referred to in the preceding footnote were as follows:

Groups of Bonds	PRICES				
	June, 1928	June, 1932	June, 1934	Decline	Rise
Aaa.....	99	78	95	21	17
Aa.....	98	64	86	34	22
A.....	97	47	70	50	23
Baa.....	95	37	63	58	26

In the case of common stocks and real estate, and even of speculative bonds and preferred stocks, the amount of the income stream will be a matter of estimate. Changes in the estimates of investors and speculators upon this point will be a major cause of price fluctuations among such holdings. Indeed, it is the futurity element that often makes difficult the explanation of prices in terms of current income and earnings. A common stock or piece of real estate will usually have some value even at a time when it is giving no cash return and when the income account shows a deficit. At such times the market value will represent the discounted hopes of the future. This phenomenon of discounting unrealized possibilities explains why the dividend yield or even the rate earned on market price is not such a satisfactory index of investment quality as market yield is in the case of bonds. Among bonds the net yield figure represents the total return, and a low return indicates high regard for quality on the part of the market.⁷ Among common stocks, however, a low return may merely represent excessive hopes for a purely speculative possibility. In the last stages of a rampant bull market, even immediate earnings prospects may be largely ignored and purchases made solely in the hope of unloading at a high price to some even more optimistic speculator. The more speculative and uncertain stocks may under such circumstances sell on a lower yield basis than the more steady-going investment issues that hold little mystery and do not excite the imagination. The investor, then, particularly if he is interested in common stocks, will find a knowledge of the influence of interest rates and of business conditions important.

Bond yields and other interest rates. The capital market is often thought of as being divided into a long-term and a short-term money market. In turn, these two markets may be regarded as consisting of a great many sub-markets, somewhat overlapping, but distinguished by geographical limits and the lending standards of different investor classes. The close interrelation of even the two major divisions is shown in Figure 25, which shows high-grade bond yields and interest rates for four-to-six-months open-market prime commercial paper. The former moves within a much narrower range than the latter, but the direction of movement is generally the same. The difference in amplitude of movement can be explained in both investment and

⁷ Convertible bonds or bonds with other valuable privileges, such as the right to subscribe for new issues at a favorable price, are exceptions to this rule.

speculative terms. Considered from the investment point of view, those lenders who have the option of either long- or short-term loans would be willing in a period of high rates to take a somewhat lower return for a period of years than they would if the advantage were only for a period of months. Thus, if an average rate of return were $4\frac{1}{2}$ per cent, a yield of 5.5 per cent upon a 20-year bond might be as attractive as one of 8 per cent on a six-months note. Similarly, a borrower would consider it more advantageous to pay a higher rate, such as 8 per cent, for a short period if he felt that he could probably renew on easier terms at the end of the term, than to pay a lower but still above-normal rate, such as 5.5 per cent, for a considerable number of years.

A speculative point of view would recognize possibilities of appreciation or depreciation in bond prices when yields appear very high or very low. High yields mean low prices, and a speculator would find that the potential appreciation plus interest coupons over a short period might well exceed the return from higher-yielding commercial paper. Conversely, in a period of low yields, a commercial bank might prefer low-yield commercial paper to bonds that might suffer such price depreciation as would more than counterbalance the latter's higher current return. Both possible explanations of the difference in amplitude of movement between short- and long-term interest rates are probably effective.

A closer examination of various interest rates would show further differences, related to those discussed. If the Figure showed monthly data, greater fluctuations would appear than those now lumped together in annual averages. Call money rates, which are set from day to day, would show even more violent fluctuation than commercial paper rates. Loans made by banks to their own customers, so-called over-the-counter loans, would show less variation from time to time than open-market rates. Short-term bonds would tend to show yield variations more like those of commercial paper than of long-term bonds.³

These fluctuations in interest rates can be explained in the abstract terms of supply and demand for loanable funds. On the supply side are the savings of individuals and corporations and in some periods the expansion of bank credit made possible

³ For an extended discussion of the American money market, see Riefler, Winfield W., *Money Rates and Money Markets in the United States* (New York: Harper & Bros., 1930).

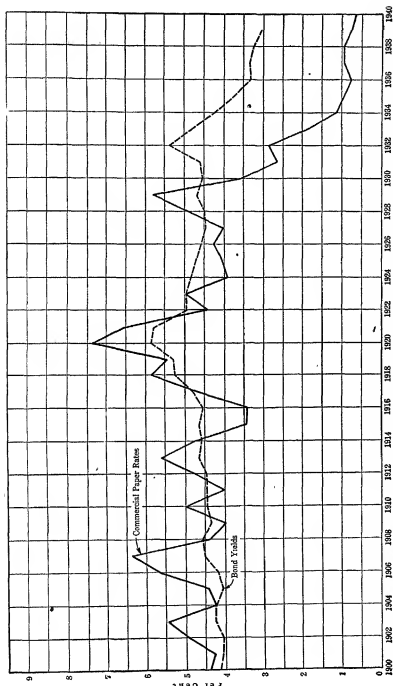


Figure 25—Comparison of High-Grade Bond Yields and Interest Rates on Four-to-Six-Months Prime Commercial Paper.

by gold imports, lowered reserve standards, or devaluation of the currency which frees gold for use as additional banking reserves. On the demand side are not only the requirements of would-be borrowers, but such loans as are returned to the market by resales of parties who wish to recover principal for purposes other than relending, and in periods of bank credit contraction, the funds recovered by banks seeking to improve their reserve position.

A more immediately useful, though perhaps less fundamental, explanation of interest rates is found in a comparison of such rates with the changes taking place in business activity. The curve of interest rates has been shown to move up and down in correspondence with business but lagging after it, usually some ten to fifteen months, although occasionally it has reached its turning point after an even greater interval, such as eighteen months to two years.⁹ This lag suggests that for an interval after business revives from the trough of depression, it has enough idle funds to care for its current needs, or banks have such a surplus of funds, or both, that interest rates do not rise immediately. Some partially frozen loans would also be in liquidation at this time. On the other hand, after business activity passes its peak, a period may follow during which interest rates will be sustained by the pressure of banks seeking to liquidate loans and so strengthen their position, and of business concerns still requiring loans to pay for merchandise that is not moving into the hands of customers as rapidly as it should. The abnormally easy money markets in the late 1930's have upset the relationship between interest rates and business activity. Interest rates have, at least temporarily, become unresponsive to changing business activity.

The foregoing discussion indicates the manner in which high-grade bond prices are influenced by fluctuating business activity, or the business cycle, through the medium of interest rates. Common stocks would presumably be more directly influenced, for the volume of business will be a primary factor in determining business profits—the chief factor that gives a stock its value. Before passing to a discussion of common stocks and their price movements, we may consider briefly bonds and preferred stocks that are not of the best investment quality. In general, their position is such that their standing is sensitive to changes in earn-

⁹ Snyder, Carl, *Business Cycles and Business Measurements* (New York: The Macmillan Co., 1927), Chapter XII, Chart 56, which compares an index of business and commercial paper rates, 1875-1926.

ings. As a result, their fluctuations are usually found to correspond more closely with those of the stock market than with those of the high-grade bond market.

Sloan points out this synchronization and gives data for the period 1914–1925, inclusive, which shows that the speculator in preferred stocks who tried to take advantage of cyclical troughs and peaks in the market would have made 85.3 per cent of the maximum possible gain if he had effected his purchases and sales at the low and high points for speculative common stocks; whereas, if he had used the turning points in the high-grade bond market, he would have realized but 56.2 per cent of the maximum.¹⁰

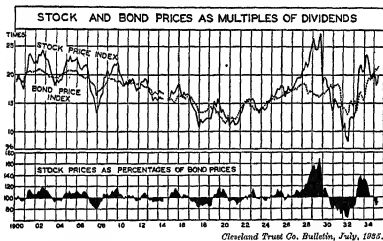


Figure 26—Stock and Bond Prices as Multiples of Dividends.

Common stock price fluctuations. On general economic grounds, one might expect that major broad cyclical price movements of common stocks would show a rough correspondence with those of bonds. The two instruments represent alternative forms of long-term investment, and any unusual disparity in relative yields would tend to produce a shifting of investments that would bring the two back to their former relationship. An interesting test of the degree of yield relationship is shown in the accompanying chart (Figure 26), which actually shows inverted rates of return on bonds and stocks at market prices for the period 1900–1935, although the data are labeled as “prices.”

¹⁰ Sloan, Laurence H., *Security Speculation* (New York: Harper & Bros., 1926), p. 153.

In a chart of this sort, which, because of its small size, eliminates minor fluctuations, the broad correspondence of bond yields and cash dividend stock yields is clearly seen, although the latter show more extreme movements than the former. This comparison suggests a further one that would more clearly reveal the spread between the two series. The lower part of this figure brings out this relation by showing stock "prices" as a percentage of bond "prices" in each month.¹¹ The comment accompanying the chart is of interest:¹²

In the early years of the century these common stocks sold in normal times to yield only a little better than four per cent, which means that their prices were nearly 25 times their dividends. Then their prices so expressed drifted downward for 20 years until during the war prosperity in 1918 the stocks sold on the average for only about 11 times their dividends, or to yield about nine per cent. After the war the prices rose almost steadily for nearly 10 years until they were not very much higher on this yield basis than they had been back in 1902. They sold in 1929 to yield less than four per cent, and so at prices that were over 25 times as high as the amount of their dividends.

The decline during the depression was swift and long. In the summer of 1932 the prices were only about eight times as much as the dividends, and the yields were more than 12 per cent. In the recovery since then the prices measured in multiples of dividends rose to the highest levels that had been reached since 1902, except during 1928 and 1929 at the peak of the speculative boom. In percentage of advance the bull market in dividend paying common stocks from 1932 to 1934 exceeded that from 1924 to 1929. The apparent decline in prices which the diagram shows as having been in progress during the past year has in reality been largely caused by a large number of dividend increases which have not in most cases been followed by corresponding increases in the market prices of the stocks.

In reading the chart, however, one must take care to avoid misinterpretations. The "prices" shown are not actual prices but the ratios of market prices to yield, which would reflect market price if income were constant. Since the income of bonds is fixed, such a method gives a satisfactory picture of bond market

¹¹ A description of the figure reads:

"By using such methods one can work out an index of the prices of stocks, not in dollars, but rather in terms of the multiples of their dividends. Such an index is shown in the diagram. It covers the past 36 years, and throughout that long period it is based on the prices and dividends of all the dividend paying common stocks regularly traded on the New York Exchange. The number of such issues varies from month to month. A year ago in March there were 186 of them, and by March of this year the number had increased to 227." *Cleveland Trust Company Business Bulletin*, June 15, 1935. Chart is reproduced in form given in *Bulletin* for July 15, 1935.

¹² *Ibid.*

price movements.¹³ Dividend income, however, is a changing amount, and therefore stock prices of the artificial kind shown here do not give an accurate impression of actual price movements. During a period of increasing dividends, the artificial price index would show no rise if price remained in a constant relation with current dividends, and vice versa. But even if the stock prices of this chart do not show actual market movements, they do bring out an essential point; namely, that bond yields and dividend yields have kindred movements through the ups and downs of the business cycle, that the swings of dividend yields are wider than those of bond yields, and that these differences have often been useful in pointing out market excesses that subsequent movements corrected.

Stocks and business activity. Earnings rather than dividends would undoubtedly be regarded by many as a more satisfactory and fundamental basis of market value, but unfortunately they are not so generally available on a quarterly basis.¹⁴ Earnings data might well explain some of the peculiarities of dividend yields. The tendency for dividend changes to lag behind changes in earnings, and for earnings to provide a more generous margin over the dividend in good times and to fall below dividends in bad times, are factors that should be kept in mind when interpreting the dividend-to-market-price relations.

Reference to any measure of stock prices extending over a period of years will show forcefully the preponderant influence of earnings, as compared with the interest rate, on price fluctuations. Figures 27a and 27b show such wide fluctuations as could only have resulted from large changes in income. Since earnings fluctuations are largely a function of the volume of business

¹³ Such a bond price index actually has certain technical advantages over an average of actual bond prices. The latter, if composed of bonds of medium or short maturity that are all either below or above par, will tend to "drift" toward par. Furthermore, substitutions are more difficult in a "natural" bond price index because of differences in coupon and maturity between the substituted and original bonds.

¹⁴ One study has been made of the price-earnings ratio that used average monthly prices and earnings for the previous four quarters of the five years 1925-1929, inclusive. These data showed an average multiple for eighty stocks of close to 10, from the beginning of 1925 to the middle of 1927. Thereafter, the multiple rose steadily until it reached 15 in April, 1928, at which level it remained until the crash of October, 1929. In the final three months of that year, the figure dropped back to slightly below 10. The data for the seven industrial sub-groups showed considerable variation. Elliott, David C., *A New Index of Equity Values* (Cleveland: The Midland Bank, 1930).

activity, these charts are given to make possible a comparison of the common fluctuations of activity and industrial stock prices with respect to their long-term trends.¹⁵ Figure 28 brings this story down to date by comparing Standard Statistics Company's inclusive industrial stock index with the Federal Reserve index of industrial production (seasonally adjusted).

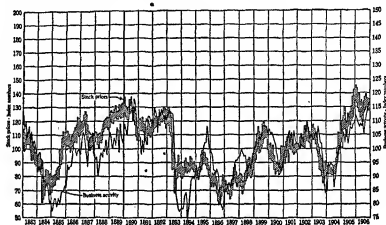


Figure 27a—Stock Prices and Business Activity: 1833-1906.

These charts show clearly the large fluctuations in business activity, commonly referred to as "business cycles."¹⁶ Such

¹⁵ These charts are taken from the *Annalist*, August 13, 1926, pp. 204, 205, where they serve to illustrate the first of two articles on "Stock Prices and Business Activity, 1834-1926," by Emerson W. Axe and Ruth Houghton. The shaded areas represent the range between the monthly high and low prices of a group of leading industrial stocks. Each series has received statistical treatment to remove seasonal variation and long-time trend, so that the cyclical movements alone might be shown.

The data for these two series are shown for the following years in a large chart, which also pictures wholesale commodity prices, commercial paper rates, and bond yields for the period 1854-1934, inclusive. See Axe, Emerson W., *Annalist*, Jan. 18, 1935, pp. 72-73. However, the figures for industrial stock prices in this chart are not shown as relatives of their trend, and consequently do not permit the close comparison of relationship made possible by the chart in the text above. The article last cited discusses the interrelation of stock prices, interest rates, and commodity prices.

¹⁶ Other well-known indexes of business activity are compiled by the Federal Reserve Board, the American Telephone and Telegraph Company, Standard Statistics Company, and Moody's. In 1931 the Cleveland Trust Company published a chart of "American Business Activity since 1790." Activity was shown as relative to the long-term normal trend shown to August, 1931. The course of commodity prices was also illustrated. Data have been published from time to time to bring the chart up to date.

variations in business affect the economic welfare in a grave manner. The amelioration or elimination of the distress caused by depression constitutes one of the most, if not the most, serious problems of economics. All social classes suffer, the investors among them. The latter are most seriously affected when they hold the more speculative types of investment, such as common stocks and real estate, but even some well-regarded securities of the more conservative type are usually upset in every major de-

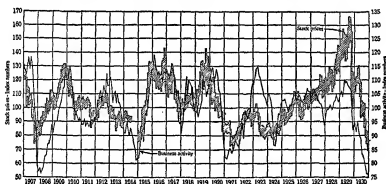


Figure 27b—Stock Prices and Business Activity: 1907-1930.

pression. The most obvious point to note about such fluctuations would appear to be the large opportunities for gain or loss. Not only are the potential profits alluring, but speculation, if successfully carried out, would presumably have a tendency to smooth out fluctuations by providing offerings of securities in boom markets and by creating buyers for depressed markets.

Business cycle theories. Before the possibilities of utilizing these long swings as a part of an investment policy are discussed, a brief statement is appropriate as to the theories concerning the business cycle. These irregular, wave-like movements of business activity are generally described as consisting of four periods—recovery, prosperity, recession, and depression. The end of a period of prosperity may be marked by a crisis in which credit strain appears and liquidation is widespread and severe. At such a time or during the depression, a panic may break out, marked by such phenomena as bank runs, suspension of specie payments, startling corporate failures, and closed security exchanges. Many early students devoted their chief attention to crises and believed the cycle was regular and periodic. The development of more exact statistical measurements has shown not only ir-

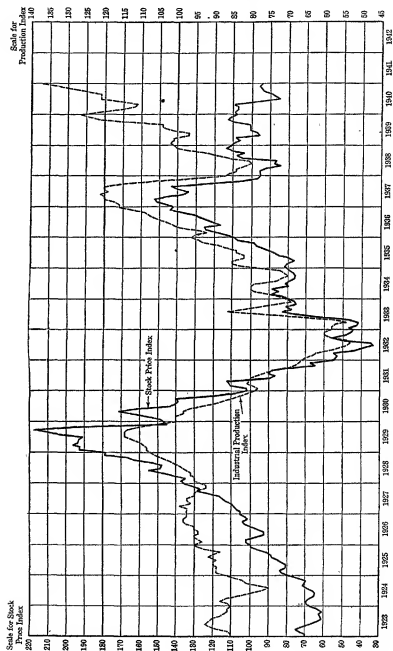


Figure 28—Indexes of Industrial Stock Prices and Industrial Production.

regular periods, but a considerable amount of individuality in the conditions leading up to the crisis.¹⁷ Possibly the early belief in a uniform periodicity accounts for the numerous attempts to construct an all-embracing theory that would provide a universal explanation. Despite the huge importance of such considerations to investors, a treatment of all these theories or even any thorough analysis of business cycles are matters too broad for the scope of this volume.¹⁸ Two significant factors, however, may be mentioned and discussed briefly, not only because they have been stressed by students of the cycle as containing the explanation of such fluctuations, but also because an understanding of their economic importance is helpful in interpreting business conditions as they affect investments. These two factors are the credit factor and the durable goods industries.

Bank credit and business fluctuations. Attention has generally centered not upon general credit but upon bank credit. The latter has been deemed particularly important because of the ability of banks, within limits, to manufacture credit and to liquidate it, thereby adding to or subtracting from the fund available for investment, which is ordinarily thought of as being derived solely from the national savings. This elasticity in the volume of bank credit, which includes the purchase of bonds, and loans on real estate and on collateral, affects investment values directly and may both stimulate expansion in prosperity and force excessive liquidation in a period of recession and depression. As a result, statistics bearing upon bank credit, such as interest rates, reserve ratios, international gold movements, and loans-to-deposits ratios, have received close attention. The Harvard Committee on Economic Research found, from a study of economic statistics covering a period of twenty-five years before the World War I, that a decline of $1\frac{1}{4}$ per cent in rates on prime commercial paper (duly corrected for seasonal variation) from the high point in the money cycle was the signal for the inauguration of a forward movement in security prices. Conversely, an increase of the same amount in interest rates was found to indicate the culmination point of a major cyclical advance in

¹⁷ Snyder, Carl, *Business Cycles and Business Measurements* (New York: The Macmillan Co., 1927), p. 233.

¹⁸ For a description of current theories, see Mitchell, Wesley C., *Business Cycles* (New York: National Bureau of Economic Research, 1927), pp. 11-47. A suggestive list of originating causes may be found in Clark, John Maurice, *Strategic Factors in Business Cycles* (New York: National Bureau of Economic Research, 1934), p. 184 ff. For other references see page 862.

security prices.¹⁹ Credit stringency will undoubtedly continue to be a danger signal in the security markets, and ample bank credit a basis for potential expansion, but changes wrought by the introduction of the Federal Reserve banks have so altered conditions that the forecasting value of interest rates has been greatly diminished, if not actually lost. The subjects of interest rates and bank credit will be taken up below when the practical possibilities of forecasting are considered.

Fluctuations in durable goods industries. Along with the credit factor, the durable, or heavy, goods industries have been recognized as a prime element in the business cycle. Consumption goods of a temporary nature, like food and clothing, are replaced frequently and tend to regularity, particularly so far as demand is concerned. Their production and distribution fluctuate much less than is the case with durable goods, which consist of capital equipment, such as factories, railroads, utilities, and office buildings, and of some consumption goods, such as automobiles and residential buildings. Such fluctuations as do occur in the volume of ordinary consumption goods and services can be largely traced to the unemployment and disorganization that mark the course of the durable goods industries. Some irregularity would appear natural in these latter types of business. Permanent improvements like railroads, utilities, and concrete highways require either no, or very infrequent, replacement. But this natural change in demand might be expected to appear in the statistics of a large country like the United States as relatively moderate year-to-year changes. In practice, this natural irregularity is increased greatly by: (1) the dependence of these industries upon credit and confidence; (2) the economic organization that tends to lend itself to excesses; and (3) the indeterminate life of most durable goods, which permits the deferring of their replacement in a period of depression and pessimism.

The problem of readjusting labor and resources when a major branch or all branches of the heavy goods industries are slowed down causes economic dislocations that would be serious even if they were uncomplicated by an unsatisfactory credit situation. It should be noted in passing, however, that an important change has been in process ever since the Industrial Revolution. The picture of technological unemployment (that is, unemployment

¹⁹ Presley, Fred Y., *The Economic Cycle, Its Application to Buying, Selling, Production, Investments* (Cambridge, Mass.: Harvard University Press, 1925), pp. 27, 29

caused by the progress of labor-saving invention) painted by some writers as an insoluble difficulty in the present economic order ignores a long record of successful change and readjustment throughout past decades.²⁰

While it is impossible in this limited discussion to justify our emphasis upon the credit factor and the durable goods industries, it is significant that most proposals for cyclical control have centered upon these two elements, although sometimes the reasons for emphasis have varied. Some have suggested the control of money and bank credit as the most important, or even the only necessary, remedy. (This control is often related to the price level factor discussed below.) Others have believed that long-range planning by the major interests in the capital goods field is the more effective remedy. Those who are skeptical of planning of this sort suggest as an ameliorative device the planning of public works for periods of depression.²¹

Forecasting cyclical movements. The investor is primarily concerned less with finding out the fundamental causes of the business cycle, than with deciding whether or not a policy can be pursued that will permit him to profit from these swings. For him cycles are in a class with natural phenomena, over which he has no control. As in the case of the mariner concerned with the weather, a profound knowledge of first causes is less important than the ability to interpret what may be superficial signs that have barometric significance. A variety of business indicators have been studied and accepted as having barometric character by different persons at different times.²² Among these have been pig-iron production, blast furnaces in action, commodity prices, prices of certain industrial raw materials such as steel scrap and coke, profit margins, freight-car shortages, crops, gold movements, the export-import ratio, interest rates, bank deposit turnover, bond prices, and stock prices. None of these factors has proved to have a precise and invariable relation to the ups and downs of business activity or of the stock market. In this respect, minor cycles would be expected to be difficult to predict

²⁰ See chart of horsepower in factories, of population, and of the gainfully occupied, 1870-1930, *Cleveland Trust Company Business Bulletin*, March 15, 1935.

²¹ Wolman, Leo, *Planning and Control of Public Works* (New York: National Bureau of Economic Research, Inc., 1930). Clark, John Maurice, *Strategic Factors in Business Cycles* (New York: National Bureau of Economic Research, Inc., 1934).

²² Snyder, Carl, *Business Cycles and Business Measurements* (New York: The Macmillan Co., 1927), Chapter XIII.

because of the mildness of the movements, but forecasters have frequently made erroneous predictions in regard to major movements as well. Perhaps the most generally helpful signs of the approaching end of a period of prosperity likely to lead to a major recession have been:

1. Credit strain, shown in high interest rates and falling bond prices.
2. Unusual expansion in some leading durable goods industries, such as the construction of railroads, utility plants, highways, and commercial and residential buildings, which makes contraction of future operations appear probable.
3. Common stock prices in a higher than usual relation to earnings, particularly when studied in the light of bond yields.
4. Exceptional business optimism.

Depression lows, on the other hand, that provide the greatest security bargains are quite generally marked by the reverse conditions: easy credit and low interest rates; rising bond prices; an accumulation of deferred demand not only for new durable goods but also for neglected repairs and maintenance of existing equipment; common stock prices in a low ratio to income; and pessimism. However, to state the matter in this way should not mislead the reader into believing that forecasting of major security price movements is a simple problem. Every cycle is marked by minor fluctuations, the familiar saw-toothed curve of business statistics, which provide false starts that are readily mistaken for major turning points. The time relation between different related series of business statistics also varies considerably. Yet timing of purchases and sales is the essence of successful forecasting for security price swings. To predict an event one or two years too soon is likely to be fatal to the anticipated profits. That such errors are made even by those engaged in special study of this field is well known. In his study of the forecasts of general business activity by six very well-known organizations, Cox discusses these difficulties. His explanation of one of the sources of trouble is valuable at this point:²³

A recent mistake of certain services has been the expectation of too great or too prompt effects from conditions of credit supply. The error which

²³ Cox, Garfield V., *An Appraisal of American Business Forecasts* (Chicago: University of Chicago Press, rev. ed., 1930), p. 73. The six organizations whose forecasts were studied were the Standard Statistics Company, Babson's Statistical Organization, Brookmire Economic Service, Harvard Economic Society, National City Bank, and Moody's Investors Service.

marred most seriously the eleven-year record [November, 1918–December, 1929] under review was the failure to foresee the industrial recession of 1923–1924, and this mistake appears to have been due primarily to overconfidence in the power of abundant bank credit to sustain or even expand business activity regardless of other factors. Again at the close of 1928 certain services doubted the ability of business to expand as it did in 1929 in the face of tight money. Then when the recession finally arrived it was erroneously predicted that the strong banking position would suffice to prevent the decline from reaching a depression level.

Another study, made by Cowles, confined solely to forecasts of the stock market outlook, casts serious doubts upon the virtues of any of the well-known devices.²⁴

A study was made of 16 financial services that made 7,500 recommendations from January 1, 1928, to July 1, 1932, and used various combinations of factors as a basis of forecasting. The record was no better than might have been expected from mere chance. Similarly, the results for 24 financial publications for the same period were somewhat poorer than would have been probable from random performance, and the successful records of the individual publications that were above the average were little, if any, better than might have been expected from chance.

Perhaps the most interesting results were those reported for the predictions of a former well-known editor of a leading financial journal, who based his predictions upon a time-honored and highly respected theory. Because of the special interest in this case, an excerpt is given here:

During 26 years of his incumbency Hamilton wrote 255 editorials which presented forecasts for the stock market based on the Dow Theory. These were sufficiently definite to permit scoring as bullish, bearish, or doubtful. This we did by a majority vote of five readers. When doubtful we assumed that he abstained from trading. When bullish it was assumed that he bought equal dollar amounts of the stocks included in the Dow-Jones railroad and industrial averages, and sold them only when he became bearish or doubtful. When bearish we assumed that he sold short equal dollar amounts of these stocks and covered only when he became doubtful or bullish. . . .

From December 1903 to December 1929, Hamilton, through the application of his forecasts to the stocks composing the Dow-Jones industrial averages, would have earned a return, including dividend and interest income, of 12 per cent per annum. In the same period the stocks composing the industrial averages showed a return of 15.5 per cent per annum. Hamilton therefore failed by an appreciable margin to gain as much through his forecasting as he would have made by a continuous outright investment in the stocks composing the industrial averages. He exceeded by a wide margin, however, a

²⁴ Cowles, Alfred, 3rd, "Can Stock Market Forecasters Forecast?" *Econometrica*. July, 1933, pp. 314–316.

supposedly normal investment return of about 5 per cent. Applying his forecasts to the stocks composing the Dow-Jones railroad averages, the result is an annual gain of 5.7 per cent while the railroad averages themselves show a return of 7.7 per cent.

Hamilton was long of stocks 55 per cent, short 16 per cent, and out of the market 29 per cent, of the 26 years under review. Counting only changes of position, he made bullish forecasts 29 times. Applying these to the industrial averages, 16 were profitable, 13 unprofitable. He announced bearish forecasts 23 times; 10 were profitable, 13 unprofitable. He advised 38 times that funds be withdrawn from the stock market, 19 of these withdrawals being profitable, 19 unprofitable. In all, 45 of his changes of position were unsuccessful, 45 successful. The application of the forecasts to the railroad averages confirms these conclusions except that in this case 41 changes of position were successful and 49 unsuccessful. For the period from 1909 to 1914 inclusive, when the industrial averages displayed what, in effect, was a horizontal trend, his hypothetical fund shrank 7.8 per cent per annum below what it would have been if loaned at 5 per cent interest. The result of applying his forecasts to the railroad averages deserves attention in view of the fact that this group displayed an almost horizontal secular trend for the 26 years under consideration. His annual average gain of 5.7 per cent in this group would have been approximately equalled, in the case of a continuous outright investment, by the dividend income.

Because the foregoing study had to be presented within the space of a magazine article, it contains insufficient evidence upon which to base an independent evaluation of its merits. Aside from questions of statistical procedure, there is always the question of interpretation of the advice of forecasters, particularly where such advice takes the form of general comment rather than specific instructions to buy or sell.²⁵ But if the predictions are sufficiently ambiguous to permit of their misinterpretation in a study such as that just cited, their value for the average investor becomes doubtful. Consequently, without certifying as to the accuracy of Cowles' conclusions, we offer them here as a counterbalance to the much more voluminous literature that has pictured the golden profits potentially present in the past cyclical movements of the stock market and suggested that they were readily obtainable after either a limited amount of study of the economics involved or the purchase of a particular advisory system.

It is important to note that the period covered by Cowles' study of financial services and publications was a brief one, 1928-1932, and that, while the time-honored signs of trouble in 1928

²⁵ Thus, opinions regarding a somewhat ambiguous forecast might differ. Cowles' method was to close out a position when, in the opinion of his jury of five, the forecast was uncertain.

and of recovery in 1930-31, were eventually followed by the expected phenomena, the lags between barometric indications and the indicated events were unusually long, so that, from a practical point of view, forecasts were decidedly inaccurate.

Three important factors have served to reduce, or at least suspend temporarily, the value of former guides to trade fluctuations. (1) Interest rates have fallen to a record low level, at which they fluctuate but little with changes in the use of credit because of the surfeit of lendable funds. (2) Government spending on a huge scale has taken the place of spending for capital assets by business as a primary cause of business fluctuation. This change in emphasis promises to continue, at least as long as the national defense program runs at a high tempo.²⁶ (3) And, finally, there has been an unusual succession of changes in business confidence because of the impact of social and economic reforms after 1932 and more recently because of World War II. Recent pessimism over the outlook has prevented the stock market from responding to the upsurge of business from national defense expenditures. (Figure 28.) Fears of increased taxation and a postwar deflation are major influences.

Long pull versus long swing. Controversy over the possibility of reaping profits from cyclical movements has resulted in two widely opposed attitudes upon investment policy. Some contend that prediction is so uncertain a process that the majority of investors will do better to invest their funds as they become available without regard to business conditions, except in those cases where recoverability of principal is definitely required. Such a policy is said to be investing for the "long pull" as opposed to investing for the "long swing"—that is, attempting to profit by buying securities in periods of depression and selling them in periods of boom. Advocacy of a long-pull policy is most common among those who are interested in bonds rather than stocks. Logical reasons for this point of view by bond buyers are apparent from the following considerations:

1. Investors in that group include life insurance companies, savings banks, trustees, and other holders of high-grade bonds who desire regularity of income to satisfy the needs of their posi-

²⁶ A graphic comparison of trade and industrial activity with the flow of new funds into the market from Government and corporate financing is made for the period 1929-1939 in the *Cleveland Trust Company Business Bulletin*, January 15, 1940.

tion. A more irregular income, even if larger in total, would be much less satisfactory. Appreciation is highly uncertain.

2. The fluctuations of better-grade bonds are so much less than those of stocks that there is always a question as to whether any substantial gains would be realized by selling bonds at what were believed to be high prices, in the hope of repurchase at lower levels.

3. Finally, the very size of the holdings of larger institutional investors in this group makes it difficult to shift holdings on such a grand scale.

The policy of purchasing to hold to maturity has even found expression in the accounting for bond holdings of life insurance companies. Such companies generally ignore market price fluctuations, except when a bond deteriorates in quality. The bond is originally placed on the books at cost, and the premium or discount is amortized regularly each year so that book value marches steadily from cost at the time of purchase towards par value at maturity.

Because of their demand liabilities, commercial banks have usually found it good practice to carry their bonds at cost or market price, whichever value is lower. Because banks are inclined to regard all holdings as being potentially available for liquidation, they are particularly concerned with bond price movements. This feeling increased as the price of high-grade bonds mounted to unheard of highs and yields fell correspondingly. The purchase of relatively non-fluctuating short maturities grew in popularity in the late 1930's.

In order to permit banks to meet a bond market reaction without fatal effects upon their balance sheet, regulations were promulgated in 1938 that permitted members of the Federal Reserve System to carry bonds of investment quality on their books at cost even though the market was lower at the date of the balance sheet. (This rule does not rescind the practice that requires premiums to be amortized.) Investment quality is interpreted to mean bonds that fall in the four highest rating groups and unrated obligations of similar quality.

Conservatively managed banks will, however, recognize that whatever arbitrary valuation rules are adopted, they can realize only market values in the event that they are obliged to meet heavy withdrawals, and they will be guided accordingly. Some banks are following the practice of building an investment port-

folio of diversified maturities, running from one to five or ten years. In that way a certain fraction of their funds mature each year and can be used, if needed, to meet any contraction of deposits.

Long swings in common stocks. When attention is shifted from the bond market to the stock market, wider and hence more important price fluctuations are found. The desirability of timing purchases becomes correspondingly greater. Those who prefer a long-pull policy will find protection in keeping a sufficient fraction of their funds liquid so that any expected need for recovery of principal can be met without fear of adverse markets. A similar rule would appear to be equally advisable for the long-swing investor since errors of judgment are easy to make. The latter may also elect to keep a substantial backlog of permanent fixed-income securities in his portfolio. His attempts to profit from cyclical price movements would be confined to common stocks, and possibly, in some cases, second grade bonds and preferred stocks.

Any objection that a long-swing policy is speculative and not suitable for an investor would be met by proponents with two statements:

1. Any investment policy that ignores the absurdly low yields of common stocks prevailing during periods of inflated bull markets is unsound. It may even be considered speculative in that a portion of the stock's purchase price is clearly not justified by income—that is, the investment consideration—but by speculative hopes.

2. Any purchase of common stocks is necessarily a somewhat speculative commitment. It is better to face this reality than to ignore it. Even though it may be only partially successful, a plan of adjusting one's portfolio to changing business conditions is desirable.

For those who grant the weight of these arguments and wish to adopt a long-swing policy, certain cautions are to be suggested:

1. Margin purchases should be avoided. The buyer who acquires stocks on borrowed funds is betting on the shorter swings, and assumes that intermediate reactions will not close out his account and cause his holdings to be sold. Many who bought stocks in the years 1930 to 1932 did so on margin, in the belief that recovery was imminent. Even though their stocks

were well selected, the ensuing declines frequently exhausted the original margin. The purchaser who paid all cash could wait for time to vindicate his judgment of the long-run value of his selections.

2. Short sales should be avoided. They are always marginal transactions with possibilities of complete loss. They constitute a tool of the trader and speculator rather than of the investor.²⁷

3. No attempts should be made to speculate on day-to-day or month-to-month cycles, or on even what some might regard as minor cycles. Only when barometric signals are strongly apparent is it desirable to make changes in an investment position.

4. Any policy should be adjusted to meet the possible needs of the beneficiaries of the investment fund. Consideration should be given to such factors as the need for steady income and for recovery of principal, the temperament of the beneficiaries, and the ability to understand and bear risk.

Commodity price level changes. For those who believe that changing commodity prices are the dominant factor in motivating the business cycle, the foregoing discussion may have seemed somewhat like a production of *Hamlet* in which the Prince of Denmark was omitted from the cast. Some regard price level changes as an independent force, which may, however, play an important part in cyclical movements. Thus J. M. Clark, in commenting on the depression conditions in the years 1931-1932, said: "In the present instance, there was added to this and compounded with it a world-wide collapse in basic commodity prices which was no part of an ordinary business cycle. Without this the more usual cyclical forces would have produced much milder results."²⁸ Others have believed that the cyclical movements could be very largely explained in terms of the changes in the commodity price level.²⁹ Without attempting to dispose of the merits of this argument, the subject has been held over to this

²⁷ It is possible that on rare occasions an investor might use the short sale. He might wish an immediate sale of a security the certificate for which was in a distant safety vault; or securities might be held which it was desirable not to dispose of directly, say, because of limited marketability. A hedge against their decline might be effected by a short sale, provided a loss on the hedge could be borne or balanced by profits on the retained holdings. See Dice, C. A., *The Stock Market* (New York: McGraw-Hill Book Co., 1926), Chapter XII.

²⁸ Clark, J. M., *Strategic Factors in Business Cycles* (New York: National Bureau of Economic Research, Inc., 1934), p. 168.

²⁹ Fisher, Irving, "Our Unstable Dollar and the So-called Business Cycle," *Journal of the American Statistical Association*, June, 1925, pp. 179-202.

point for separate treatment in order to emphasize its peculiar importance to investors and to trace its major relations to different types of investors.

The student of money and banking will remember that the commodity price level is connected with the business cycle through the bank credit factor previously discussed. The circulating medium with which business is conducted in this country has gradually changed from hand-to-hand currency to bank deposits, which are transferred from person to person by checks. Factors that expand bank credit, and hence bank deposits, tend to raise the price level, although this tendency may in practice be offset by counterinfluences. Consequently, to the extent that low interest rates reflect unused bank reserves and potential expansion, they indicate a condition favorable to a higher price level.³⁰ Conversely, high interest rates suggest a possible price level decline to the extent that they show probable bank credit contraction, a highly likely reaction, particularly when such contraction is accompanied by the export of gold or by an "unfavorable" trade balance pointing towards such export.

On grounds of general economic theory, it may be objected that there need be no correspondence between changes in the volume of "deposit money" and in the price level. A common argument is that a fixed amount of money in circulation can do almost any amount of money work simply by being spent more or less frequently. The actual record of the velocity of bank deposit turnover as worked out by Carl Snyder for the period 1875-1926 shows a very good correspondence between the velocity factor and the cyclical fluctuation of an index of the volume of trade.³¹ A chart of the more recent movements of this velocity factor would show a continuance of relationship,³² although the relationship is obscured by the steady decline of velocity.

Under the pre-Federal Reserve banking mechanism, conditions were much more responsive to the gold factor than subse-

³⁰ Bank credit expansion may, of course, raise security or real estate, rather than commodity, prices. This possibility became an actuality in 1928 and 1929, and explains the importance attached to the concept of a "general" price level as distinct from that of commodities alone. Snyder, Carl, "Commodity Prices versus General Price Level," *American Economic Review*, Sept., 1934, p. 335.

³¹ See Snyder, Carl, *Business Cycles and Business Measurements* (New York: The Macmillan Co., 1927), Chart 42, pp. 152-153; and Chapter VII.

³² For more recent data (1919-1939) of the rate of turnover of demand deposits, see chart in the *Federal Reserve Bulletin*, January, 1940, p. 7.

quently.³³ Not only was gold the basic reserve factor, but the volume of deposits tended to respond markedly to the amount of gold reserves. When gold was imported, there was a strong tendency for deposits to expand, if not by loans then by bond purchases, in order that the excess reserve might be put to work. With surplus reserves negligible, any gold exports necessarily meant, almost inevitably, a contraction of deposits and hence of credit, in order that the legal minimum requirements might be maintained.

With the introduction of the Federal Reserve banks, gold ceased to be a direct agent and the direct reserve of the commercial banks. The legal reserves of the latter banks now consisted of deposit balances on the books of the new Federal Reserve banks, and these banks in turn used gold for their reserve base. No fixed relation, however, has appeared between the gold holdings of these central institutions and their deposit and other liabilities. So long as their minimum ratio has not been reached, gold exports need not contract either the credit base that they supply for the commercial banks of the country or the deposits of these banks. Similarly, gold imports may have little effect upon the volume of commercial bank reserves and deposits but may merely increase the reserve ratio of the Federal Reserve banks, assuming that such ratio has not already reached 100 per cent.

This modification of the influence of gold upon the volume of our chief form of circulating medium—bank deposits—by the interpolation of the Federal Reserve banks explains the importance attached to the policy of those institutions in the discussions of monetary and credit control after about 1920. It also explains the skeptical attitude of leading monetary economists toward the program of Professor George Warren, the chief academic exponent of the reduction of the gold content of the dollar. The efficacy of such a step to restore the price level to the objective set by the Washington Administration—the 1926 price level—depended upon an immediate and complete response of bank credit. The scheme rested upon a philosophy of money and prices that virtually ignored the banking mechanism as a part of

³³ For a statement of the interrelation of money, check circulation, and prices in the pre-Federal Reserve days, see Kemmerer, E. W., *Money and Credit Instruments in Their Relation to General Prices* (New York: Henry Holt & Co., 1907), Chapter VIII.

the money supply. The chief immediate results of gold devaluation upon prices were the fostering of speculation based upon inflation fears and the lifting of foreign exchange rates, which boosted the prices of export commodities entering the international market and of imports. As a result of the almost universal departure of the nations of the world from the gold standard by the early 1930's and of the unusually high tariff and other barriers interfering with the flow of international trade, even this latter influence upon our domestic price level was greatly reduced.

A chief objection to the Warren devaluation program was the fact that even prior to its inauguration very substantial excess gold reserves of the Federal Reserve banks and legal reserves of the member commercial banks clearly indicated adequate means for expansion of credit and prices to the predepression level, once confidence had been restored sufficiently to stimulate the normal use of this credit supply. (In 1933 the United States had more gold than at the beginning of 1929.) To add to our gold credit base by arbitrarily increasing the dollar valuation of our gold supply meant that the foundation was being laid for a bank credit expansion that might well carry prices far higher than the 1926 level.⁸⁴ The amount of our gold stock was changed from about 4 to 7 billions by the change in the gold content of the dollar, and from the beginning of 1934 to the end of 1940 it mounted to the huge total of almost \$22,000,000,000. In spite of the fact that the effect of this increased credit base was partially neutralized by raising minimum reserve requirements for member banks in the Federal Reserve System almost 100 per cent and by sterilization of gold through retention of considerable amounts in the Treasury, exceptional credit ease has resulted. On December 31, 1940, member banks had legal reserves of \$14,000,000,000 as against legal requirements of only \$7,400,000,000. The excess of reserves of \$6,600,000,000 makes potential inflation a real hazard. The point is especially significant in the face of an expanding program of national defense. With idle men and productive facilities being absorbed, only increased taxation and diversion of individual purchasing power through Federal borrowing from the public is likely to check the inflation threat. It has been

⁸⁴ See Guthmann, H. G., and Berolzheimer, H., "The Hazards of an Immediate Return to Gold," *Barry's*, Jan. 8, 1934, p. 7. This article pointed out the danger of returning to gold at a time when devaluation was politically inevitable. The return was made.

recommended that the Federal Reserve Board be given the power to convert excess reserves into required reserves by permitting it to increase the requirements over the present legal maxima.

After this brief and necessarily inadequate picture of the commercial banking machinery, without any attempt to cover the intricacies of the currency with which hand-to-hand payments are made, we return now to the main thread of the discussion. The subject of money and banking is worthy of the most thorough study by the investor because of its relation to the general price structure and business stability.³⁵ Price level movements are of investment interest chiefly because of their effect upon profits and the purchasing power of income.

Price level movements and bonds. The immediate short-run influence of commodity price level movements upon the bond market is difficult to trace with any certainty. Over the longer term, the influence of such movements is generally admitted. After the Civil War, the United States experienced a generally downward trend of prices up to 1896, followed by a reversal that pushed prices up gradually until the advent of World War I, which event initiated a more abrupt rise that ended in the 1920 crash following the post-war inflation. From about 1873 to 1903, the general trend of bond yields was downward; thereafter, until 1920, the trend was upward. In addition to the commodity price level, other influences of indeterminate weight may be mentioned. The post-Civil War period was marked by several events: risk declined for the railroads, whose bonds were chiefly used as a measure of bond yields; considerable foreign funds flowed into the country; and domestic financial corporations—notably life insurance companies—were augmenting the supply of capital funds. With declining commodity prices, or, in other words, with increasing purchasing power for a fixed income, a fixed interest income would find more favor with investors. Probably the process of adjustment in bond yields to changes in purchasing power is an unconscious one, rather than the result of any exact calculation of advantage or disadvantage by investors. Two forces will be at work to produce lower yields when the trend of commodity prices is downward. (1) One force is the lowering of business profits, which would discourage common stock pur-

³⁵ The interested student is directed to such standard works as: Bradford, F. A., *Money and Banking* (New York: Longmans, Green & Co., 4th ed., 1940); and Westerfield, Ray B., *Money, Credit and Banking* (New York: Ronald Press Co., 1938).

chases and the promotion of any but the more promising enterprises. Poor return on stocks would tend to increase the relative demand for bonds; decreased promotional activity, to decrease the demand for funds generally. (2) After a time, a declining price trend would also discourage borrowing and encourage conservative capital structures. Over any considerable period of rising prices, these conditions would be reversed: all forms of physically tangible property will tend to rise in dollar value; nominal profits will be easier to make; and the more daring business promoters will reap spectacular profits in proportion to their willingness and ability to borrow.

To avoid the depressing effect of a rising general price level upon fixed income securities, the most obvious course of action would appear to be the purchase of common stocks and real estate. Important groups of investors, however, are restricted to bonds, and their problem is to limit portfolio depreciation arising from bond depreciation. One safeguard is to purchase bonds of short- and medium-, rather than long-term, maturities. Not only will the shorter maturities show less price fluctuation but, upon maturity, the funds may be invested at a higher return. Commercial banks will find short-term loans preferable to bonds.³⁰ Some bond buyers may purchase second-grade issues at such times on the theory that rising prices will so improve the earnings of the debtor that credit risk will be reduced. Any marked reduction in risk may be so much more important than the declining level of interest rates as to result in a rise in the prices of such issues. Bonds which are convertible into common stock, or which have stock purchase warrants attached, are so few in number as to offer a solution for but few investors.

As regards those occasions when the outlook is for declining, rather than rising, bond yields, buyers will wish to acquire issues that will not be disturbed by maturity or refunding at a later time when yields have reached a lower level. Long-term, non-callable issues would be most suitable. The call feature has been included in most bonds of recent years, and a choice of noncallable issues is largely limited to issues of railroads put out some years ago. Bonds with a low coupon rate or with redemption

³⁰ When, as in the late 1930's, all banks consider short-term loans preferable and fear long-term bonds, their return may fall to a negligible rate and excess reserves accumulate. In such circumstances the difference in yield between the short-term loans and bonds of medium maturity may largely discount the hazard of price decline for the latter.

provisions that reduce the likelihood of a call at a time when yields are unfavorable to the investor offer a partial substitute for the noncallable type of issue. To the extent that falling bond yields (and rising bond prices) are expected as a result of declining commodity prices, bonds must be carefully selected. In the case of corporate issues the margin of safety should be substantial enough to withstand any recession of profits and values such as may be caused by declining prices. Civil issues likewise require special care in selection at such a time because of the increased difficulty of bearing debt burden when the purchasing power of the dollar is rising.

Price level movements and common stocks. The position of stocks has become more widely understood as a result of discussions since the first World War of their merits as an "inflation hedge." It is necessary, however, to distinguish among the different kinds of common stocks, as we shall see shortly. When the price level is rising, inventory, equipment, and real estate tend to reflect the movement, and to rise in market price. In such a period it becomes relatively easy to sell goods at a profit. Merchandise appreciates on the shelves. Whether or not such profits are sufficient to maintain the working capital in terms of purchasing power is another and more doubtful matter. There is evidence that leading industrial corporations, although suffering losses, were able to increase "real" working capital during the business recession of 1929-1932, since the decline in dollars was less than the rise in the purchasing power of the dollar measured by the wholesale commodity price index.³⁷

The corresponding hazard in a period of rising prices, such as is likely in a war period, is that profits will be inadequate to cover the increase in price of assets as they are replaced. This risk is increased by the heavy taxation of the "nominal" profits of inflation through levies aimed at "excess" profits as well as increased normal rates.

Price fluctuations in a period of either rising or falling prices are accentuated for the common stockholder when his claim is preceded by bonds or preferred stocks. The claims of these latter classes are constant, and any extra profits accruing from the use of their share of the contributed funds inure to the benefit of the common equity. In times of decline the fixed claim becomes a burden that may not only absorb all of the income but may dis-

³⁷ Guthmann, Harry G., "Industrial Working Capital During Business Recession," *Harvard Business Review*, July, 1934, p. 472.

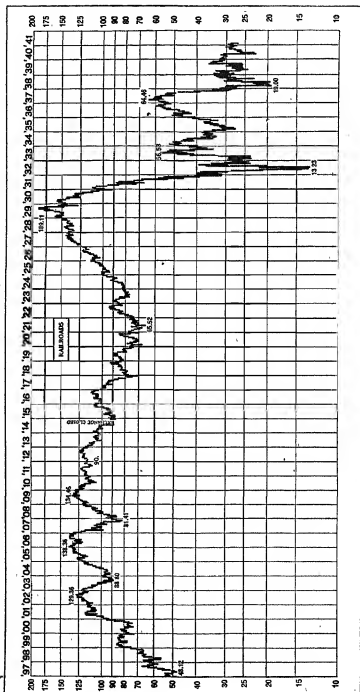
sipate a portion of the principal supporting the common equity. Long-term leases are often a fixed charge that operate much like funded debt. In a time when general prices and real estate were rising, fixed rentals would be advantageous to stockholders.³⁸

The foregoing generalizations are most applicable to the common stocks of industrial corporations. Other forces need to be considered in the case of the regulated public service and the financial companies. Price level movements have a dual effect upon the railroads and the utilities. Rising prices stimulate business activity if it is not already going ahead under full steam. Any increase in general business activity will increase the volume of revenues of the public service companies. In fact, railroad car loadings and electric power consumption are two of the most representative indicators of the volume of business in this country. Insofar, then, as price level movements influence the volume of business, they would affect industrials and public service corporations similarly. The difference lies in the greater rigidity of the prices charged by the latter companies. Because they are subject to regulation, their rates are changed but slowly to adjust to the changing costs of operation, consisting of wages and supplies, which fluctuate with prices in general. This peculiarity explains the poor performance of railroad common stocks as compared with that of industrials during the decade 1910-1920 (see Figure 29).³⁹ This period was marked first by mildly, and then abruptly, rising prices as shown in the accompanying Figure 30.⁴⁰ (The reciprocals of price movements give changes in the purchasing power of money, which are also shown in the same figure.) The effect of price level fluctuations upon public service corporations depends upon the extent to which they influence: (1) the volume of business; (2) the operating costs; and (3) the regulatory commission's attitude toward rate changes. When prices are fairly stable, industrials and public service stocks tend to fluctuate in response to much the same forces, mainly cyclical,

³⁸ Fixed rental leases were a chief cause of the troubles of the United Stores Realty Corp., real estate subsidiary of the United Cigar Stores Co. of America (1932) and of Louis K. Liggett Co. (1933).

³⁹ *The Dow-Jones Averages* (New York: Barron's, 9th ed., 1939). Only in recent years have the Dow-Jones averages been corrected to offset the reducing effect of stock dividends, and the like. Other commonly used stock price indexes or averages are those of the *New York Times*, and the Standard Statistics Company.

⁴⁰ Index numbers from 1890 to the present time are by the U. S. Bureau of Labor Statistics; for prior years, by Professors G. F. Warren and F. A. Pearson. These data are reported in the Standard Statistics Company's *Standard Trade and Securities*, Statistical Section.



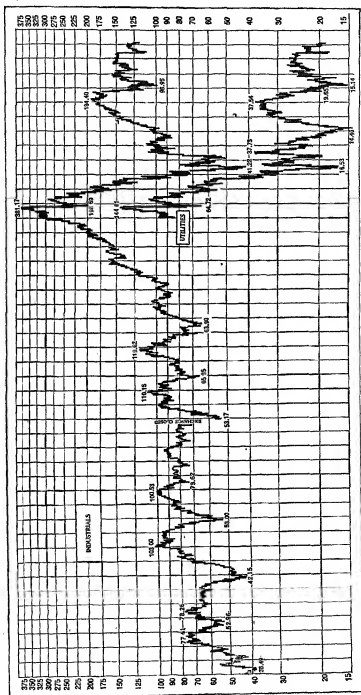


Figure 29—The Dow-Jones Averages: 1897-1941. Monthly High and Low of Closing Averages (Logarithmic Scale)

as shown in the period 1920-1930 (Figure 30). A subordinate point to be mentioned is that rising prices are likely to protect utility valuations from attack, while declining prices are likely to lead to claims of an overvalued rate base.

The response of the stock of financial corporations will be conditioned by the type of assets and by the amount of claims that are prior to the claim of the stockholder. Investment trusts and fire insurance companies generally have considerable common stock holdings. For this reason their own equity issues should react favorably to rising commodity prices and unfavorably to falling commodity prices. The degree to which they will respond should depend upon: (1) the proportion of their assets invested in common stocks rather than bonds; (2) the kind of common stocks held; and (3) the extent to which they trade on equity, as measured by the debt-to-net-worth ratio. Fire insurance companies are subject to the additional adverse influence of falling prices upon their fire loss ratio; or the favorable influence of rising prices. When business is poor and prices are declining, the temptation to arson in order to collect insurance is increased, and is evident in the loss ratio.

The assets of life insurance companies and some commercial banks are largely bonds. As we have seen, to the extent that the price level factor alone is an influence, it is unfavorable to bonds when it is rising, and favorable when it is declining moderately enough so as not to raise the question of solvency of companies or governments issuing the bonds. Commercial banks have more generally been interested in short-term loans than in bonds but in recent years a lack of the former has made for a preponderance of bond holdings. The return on both has fallen, and this condition affects the gross earnings of the banks. The potentially fatal effort of this change has been counterbalanced, however, by the reduction of interest paid to depositors and an increase in the volume of service charges. Changes in the level of interest rates continue to occupy a central position in the outlook for bank earning power.

Real estate or real estate equities are in the same economic class as industrial equities, but their movement is likely to be more laggard. Real estate rentals are slow to adjust to changing conditions, and change in response to price level movements after wholesale and retail prices and wages have turned. When prices rise violently and landlords attempt to raise rents, regulation sometimes intervenes in response to the protests by hard-pressed

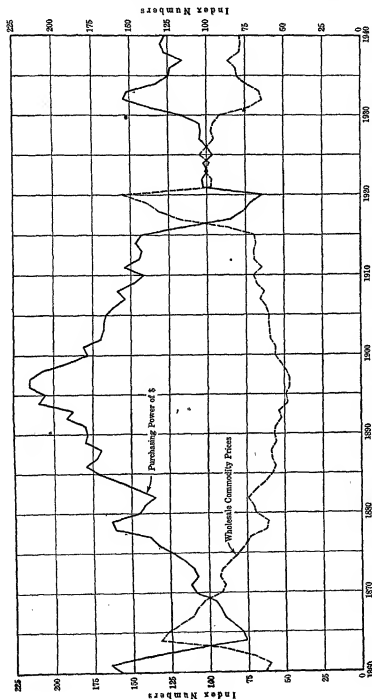


Figure 30—Indexes of Wholesale Commodity Prices and the Purchasing Power of the Dollar: 1860-1939 (1926 = 100).

families against the high cost of living. A short study of French experience in this field showed real estate income adjusted in part to price level changes when inflation was reducing the purchasing power of the franc in the period 1913-1926.⁴¹ The record, while much better than that of bonds and loans, did not show a sufficient increase in return to offset wholly the rising price level.

In such a discussion of stocks and real estate as hedges against inflation, the conclusions of Leonard Ayres, of the Cleveland Trust Company, are of interest:⁴²

. . . the best hedge against inflation in France and Germany was to invest in foreign securities. . . .

The next best was to buy the stocks of the soundest and most conservatively managed companies and to hold them. Stock speculation during inflation proved to be even more difficult and hazardous than during ordinary times. Investments in durable commodities proved profitable to users of the commodities, but speculation in the commodity markets was as dangerous as in the stock markets.

One of the strange facts about these inflationary periods is that while they destroyed the values of most existing debts, they did not succeed in lightening the debt burdens of either the people as a whole, or of the corporations.

Inflation destroys the value of bonds and mortgages and so confiscates the property of these holders of obligations and hands it over to the shareholders and the equity owners. However, it introduces so many new economic difficulties that these share and equity holders are at once forced to incur new indebtedness so that when stabilization comes the problems of debt are about as troublesome as they were before, or even more so.

Fears of inflation were aroused by the devaluation of the dollar in 1934 and continued by the unusual series of peace-time deficits that followed. Both devaluation and deficit financing were inflationary measures. However, the commodity price level was unresponsive because of the ample labor and productive facilities unemployed in every line. With the advent of World War II and the avowed intention of the United States Government to expand its spending for rearmament and the training of vast defense forces, the possibility of inflation has become a more active threat.

The existence of certain brakes should be recognized, however. Federal farm subsidies have kept alive excessive facilities for the

⁴¹ Ives, Kenneth A., "Real Estate and Inflation," *Barron's*, July 1, 1935, p. 5. Based on the experience of the Compagnie d'Assurances Generales.

⁴² *Commercial and Financial Chronicle*, June 29, 1935, p. 4311. Further statistical evidence may be obtained from an article on the effects of monetary depreciation on French securities. Lagrenée, Jacques, "La dépréciation monétaire et les valeurs mobilières françaises," *Revue d'Economie Politique*, Vol. 38 (Jan.-Feb., 1924), pp.12-44.

production of agricultural commodities. This capacity plus existing surpluses should restrain rising prices in that important sector. The supply of other commodities, such as copper and sugar, could easily be increased by relaxing tariffs. Only a few major raw materials, such as rubber, tin, and aluminum, are potentially dangerous. The bottlenecks are likely to develop in the manufacturing field where capacity and man power must be shifted to the production of armaments, planes, and ships. Even in these fields determined Federal action in the form of priorities, rationing, and price-fixing can do much to prevent an unbridled rise in prices.

When the nation is fully employed, the only methods by which inflation can be halted are by diverting individual purchasing power into the hands of the Government by taxation and by the sale of bonds to individuals, either directly or indirectly. How determined and how wisely such action will be is, of course, unpredictable. In general, democratic governments are loath to tax heavily enough and are prone to finance war efforts by inflationary methods. Preliminary indications are that the Government is aware of the danger and is prepared to take strong measures to prevent inflation. Its problem is, however, an extremely difficult one, and its desire to favor labor and agriculture makes probable a large expansion of consumer incomes. The resultant demands, particularly for durable consumption goods, will almost inevitably conflict with the Government's demands for the output of our productive resources. Inflation can then be forestalled only by drastic measures, such as rationing and price fixing.

Because the future of prices depends so greatly upon unpredictable political activities, the future position of investors will be determined to a great extent by their willingness to change and meet conditions as they appear. When Irving Fisher emphasized the importance of purchasing power and obtained wide attention for the idea, he exploded the generally accepted myth that bonds were the riskless investment.⁴³ Purchasing power is

⁴³ Fisher, Irving, *The Purchasing Power of Money* (New York: The Macmillan Co., 1911). Popularization of the idea with respect to investments is found in: Fisher, Irving, Kemmerer, E. W., Brown, Harry G., et al., *How to Invest When Prices Are Rising* (Scranton, Pa.: G. L. Sumner & Co., 1912); and "When Are Gilt-Edge Bonds Safe?" *Magazine of Wall Street*, April 25, 1925, p. 1096. In this latter article, Fisher credits Walter E. Lagerquist's *Investment Analysis* (New York: The Macmillan Co., 1921) with being the first book on practical investments to mention the importance of changes in the purchasing power of the dollar; and credits A. Vera Shaw's *Investment Counsel* (1922) with being the first to place the main emphasis on that factor.

the fundamental consideration in most investment, and the risk of losing purchasing power through a rising price level is present for the most gilt-edged bond. With the recognition of this hazard, the art of investment admittedly becomes more complex, but also more realistic. Just as recognition of the need for skillful analysis of individual securities leads one to the conclusion that an extensive knowledge of practical business affairs is valuable, so recognition of the investment influence of general business conditions—notably of the business cycle and of the unstable price level—demonstrates the value of an understanding of the subject of economics as it relates to both private and public finance.

The art of investment rests upon the maintenance of social order and the continuance of economic institutions sufficiently like those of the past to permit confidence in the future. In a world of violent action in which force is exercised in unpredictable ways for ruthlessly selfish ends, investment grows uncertain. No group has a greater stake in the favorable solution of present problems than the American investor.

Appendix
and
Selected Reference Material by Topics

Appendix

HIGH-GRADE BOND YIELDS: 1900-1939

(See Figure 3, page 57)

<i>Year</i>	<i>Railroad</i>	<i>Public Utility</i>	<i>Industrial</i>	<i>Municipal</i>	<i>Average</i>
1900.....	4.05	4.54	4.80	3.12	4.15
1901.....	3.90	4.47	4.78	3.13	4.07
1902.....	3.86	4.46	4.71	3.20	4.06
1903.....	4.07	4.61	4.88	3.38	4.24
1904.....	4.03	4.58	4.87	3.45	4.23
1905.....	3.89	4.43	4.53	3.40	4.00
1906.....	3.99	4.56	4.58	3.37	4.18
1907.....	4.27	4.91	4.99	3.86	4.51
1908.....	4.22	4.99	5.07	3.93	4.55
1909.....	4.06	4.73	4.76	3.78	4.33
1910.....	4.16	4.80	4.83	3.97	4.44
1911.....	4.17	4.78	4.78	3.98	4.43
1912.....	4.21	4.78	4.81	4.02	4.46
1913.....	4.42	4.94	4.99	4.22	4.64
1914.....	4.46	4.87	4.93	4.12	4.58
1915.....	4.64	4.88	4.97	4.16	4.66
1916.....	4.49	4.79	4.89	3.94	4.53
1917.....	4.79	5.09	5.09	4.20	4.80
1918.....	5.20	5.76	5.45	4.50	5.23
1919.....	5.29	5.84	5.40	4.46	5.25
1920.....	5.79	6.73	6.01	4.64	5.88
1921.....	5.57	6.56	5.96	5.09	5.79
1922.....	4.85	5.46	5.21	4.25	4.94
1923.....	4.98	5.41	5.26	4.25	4.98
1924.....	4.78	5.22	5.21	4.20	4.85
1925.....	4.67	5.06	5.06	4.09	4.72
1926.....	4.51	4.90	4.91	4.08	4.60
1927.....	4.31	4.78	4.83	3.98	4.47
1928.....	4.34	4.68	4.88	4.05	4.49
1929.....	4.60	4.91	4.96	4.26	4.68
1930.....	4.39	4.75	4.86	4.07	4.52
1931.....	4.66	4.68	5.07	4.01	4.60
1932.....	5.32	5.32	6.06	4.65	5.34
1933.....	4.64	5.02	4.89	4.71	4.82
1934.....	4.08	4.66	4.20	4.03	4.24
1935.....	3.76	4.02	3.78	3.41	3.74
1936.....	3.47	3.57	3.18	3.07	3.32
1937.....	3.53	3.45	3.20	3.10	3.32
1938.....	3.70	3.28	3.05	2.91	3.24
1939.....	3.47	3.03	2.86	2.76	3.03

Sources: Rail series—Standard Statistics 15 high-grade rails 1900-1930, Moody's Aaa quality rails 1931-1939; Public utility and industrial series—Standard Statistics 15 high-grade bonds 1900-1928, Moody's Aa series 1929-1939; Municipal series—Standard Statistics 15 high-grade municipals.

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